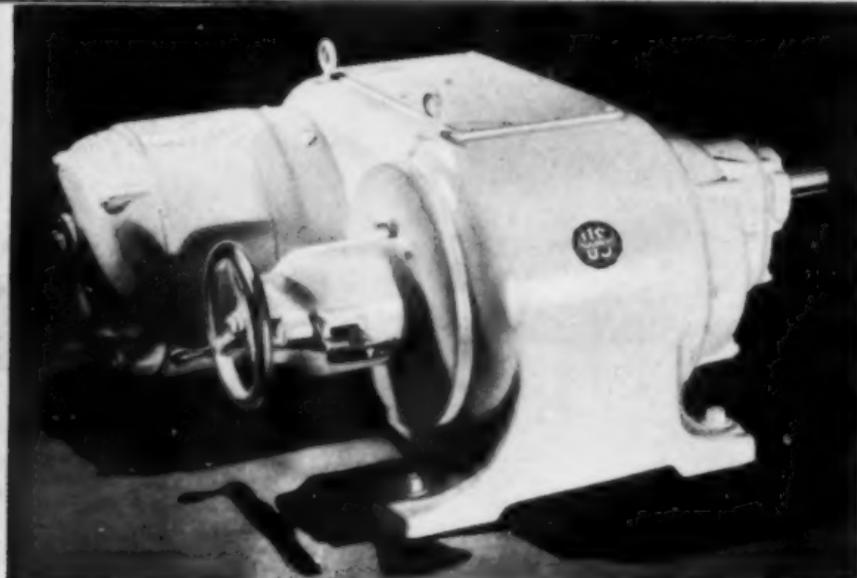


# Hitchcock's Machine Tool Blue Book

DECEMBER, 1934

TWENTY-NINTH YEAR



*At the turn of a wheel—* **1000 SPEEDS**  
**U. S. VARIDRIVE MOTOR** with Syncrogear

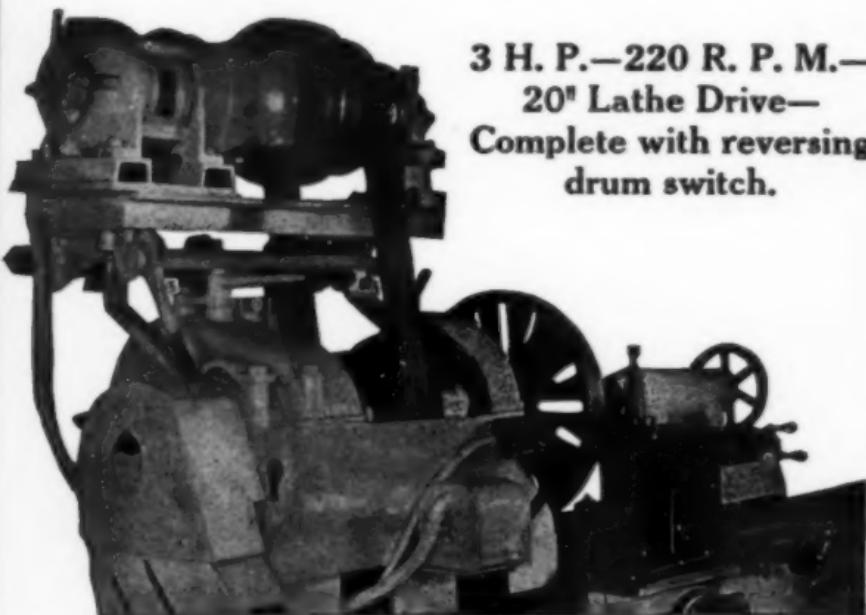
The new U. S. Varidrive motor offers any and all speeds over a wide range. It combines in an integral compact unit the simplest mechanism for replacing and performing the functions of an electric motor, intermediate couplings and transmissions, variable speed device and geared speed reducer.

**MICRO-SPEED CONTROL—1 r. p. m. to 10,000 r. p. m.**  
Send for new descriptive bulletin.

**U. S. ELECTRICAL MFG. CO., 1522 So. Western Ave., Chicago, Ill.**

**PUBLISHED AT 508 So. DEARBORN ST. CHICAGO**

# Machine Tool Motorization



3 H. P.—220 R. P. M.—  
20" Lathe Drive—  
Complete with reversing  
drum switch.

Modernize your cone pulley machines by the addition of one of these sturdy drives. Easy to attach—4 bolts and a short belt making your machine ready for heavy production. Complete drives available for a wide range of machines.

*WRITE FOR DATA*

**THE PRODUCTION EQUIPMENT CO.**  
5213 Chester Ave., CLEVELAND, OHIO

Hitchcock's  
**Machine Tool  
Blue Book**

**Selected  
Circulation**

**20,000  
Monthly**

DECEMBER, 1934

TWENTY-NINTH YEAR

## **The Corner's Turned**

According to "Business Week" of November 24th, the sale of machine tools this year in the United States alone will amount to over \$40,000,000—the best year since 1931. With \$9,000,000 foreign orders added, the annual total will amount to nearly \$50,000,000.

That is encouraging so far as it goes. But the showing for 1935 should be much better. The need for new equipment in industrial plants is tremendous. And with the federal administration and business agreeing upon closer cooperation, pessimism gradually is giving way to a conservative optimism.

As confidence in the business situation becomes more pronounced, it is reasonable to believe that manufacturers of machine tools will experience a growing demand for the equipment that is so sorely needed.

It has started—slowly, perhaps. But it is on the way, with many indications of increasing speed.



*Published By*

**Hitchcock Publishing Co.**  
508 S. Dearborn St., Chicago, Ill.

*Consult the Classified Finding Index for your requirements*

# Built for . . . . . . Production

and is accurate to an extreme—with a long-life, built-in accuracy—it's rigid because of the extra heavy construction. The head is equipped with double row ball bearings at top of spindle as well as two additional sets, thus assuring accuracy, rigidity and smoothness of operation. Runs smoothly at speeds to 10,000 r. p. m.

New from spindle to base—this husky, well-designed tool sells at a price which competes with many inferior tools now on the market.

**Floor and Bench Types—**  
described in bulletin 2951.  
Write NOW for this bulletin  
and prices.

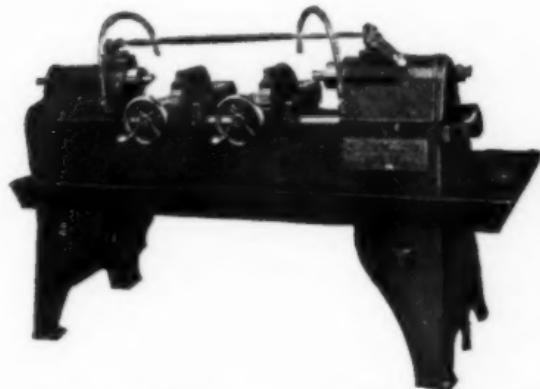


**Buffalo Forge Company**  
161 Mortimer Street, Buffalo, N. Y.

In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

**"Buffalo"**

**15-Inch  
Heavy-Duty  
Production Drills**



## CENTERING MACHINES

For drilling, reaming, tapping, countersinking, and similar operations;

on one end or both ends at once. No. 56 shown. Others available. Accurate. Fast.

### BENCH CENTERS

Accurate, compact, portable. Adjustable heads. Quick-acting spindle. Seven sizes.



### 3-WHEEL TOOL GRINDER

For grinding and honing tungsten carbides — steel — stellite. 3 types. Get new circular.



These Sundstrand tools, like our Lathes and Milling Machines, cut costs and make work easier. • • •  
INVESTIGATE! Address our Dept. H for details.

# 7 REASONS WHY You'll Like The New **RIDGID** **POSTER THREADER**

1. Direct drive over chasers—no wobble, greater precision.
2. Full-floating posts carry no load, simply taper threads. Not riveted, easily replaced.
3. Chaser locks enclosed—can't be damaged.
4. Ratchet lever snaps into exact position. Sets at "Locked" position for solid die.
5. Workholder sets to size mechanically—put on pipe, tighten with one screw.
6. Alloy tool steel chasers interchangeable—fit any poster type threader.
7. Tool weighs only 12 lbs. Rugged strength, rust-proof, no sharp edges.



No. 1R, 1" to 2", 4 sets of chasers, 1 or 2 handles. Now 11 threaders in complete line, meeting all needs to 2" thread. Ask your jobber.



**The Ridge Tool Co., Elyria, O., U.S.A.**

**RIGID**

## Pipe Wrenches

## Cutters

## Vises

## Threaders

FOOTBURT



## A Single Spindle Footburt Sipp Sensitive Drill

Made in three  
sizes of single  
and multiple  
spindle models

### More holes with this machine

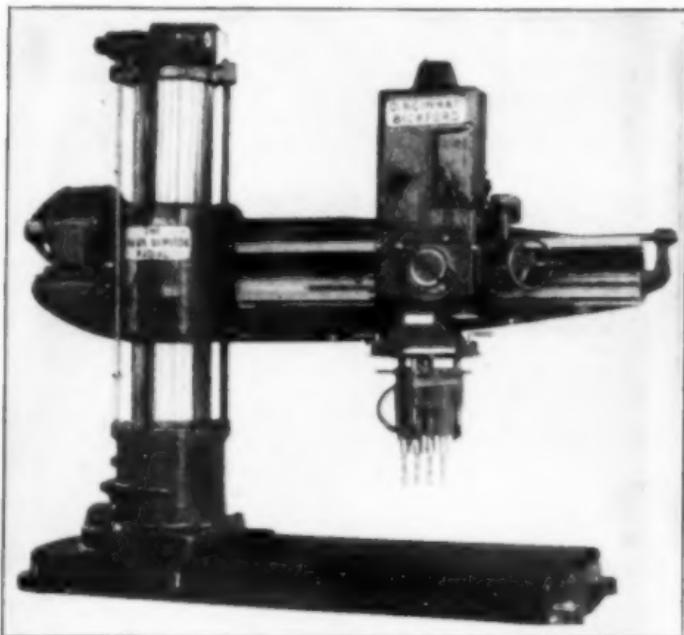
Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

*Write for No. 650 Folders*

**The Foote-Burt Company, Cleveland, O.**

FOOTBURT

## Multiple Spindle Drill Heads Used on Cincinnati Bickford Super Service Radial Drills



The use of multiple spindle drill heads on radial drills has been made efficient by recent developments of the Cincinnati Bickford Tool Company. A patented self-counter-balancing mounting bracket has been perfected which provides rigid support, compensates for the weight of the drill head, and causes its quick return from the work. The multiple head and mounting bracket may be removed in a few minutes, thus quickly converting the machine to a standard single spindle radial drill.

The illustration shows a swivel type mounting which permits a complete circle rotary adjustment of the drill head. This particular ball bearing drill head carries four 1 in. drills spaced on 3 1/16 in. centers. Cutting lubricant is supplied to each drill by separate nozzles. This machine also may be converted to a standard 7 in. Super Service Radial in a few minutes.

The drill head shown in the illustration has the spindles in line, but other types of drill heads are equally applicable. Bolt circle drilling of several diameters is being handled on a Super Service Radial with an adjustable center distance drill head. The use of a multiple spindle drill head causes no sacrifice in drilling efficiency or in the ease of handling the Super Service Radial.

# KRW Hydraulic and Sensitive ARBOR PRESSES

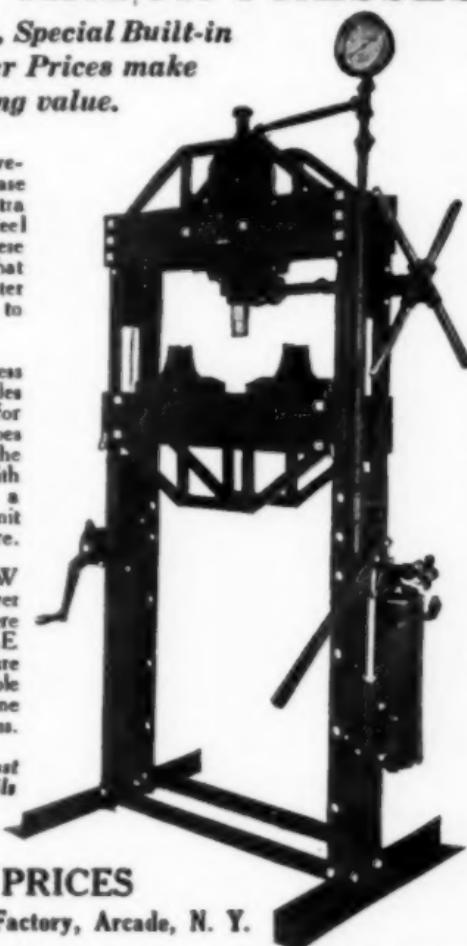
*New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.*

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is NO EXTRA CHARGE for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

*Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.*



## PRICES

F. O. B. Factory, Arcade, N. Y.

No. 37—35 ton Hydraulic and Sensitive Arbor Press (hand operated)	\$128.00
No. 37B—35 ton Hydraulic and Sensitive Arbor Press (air-oil operated)	128.00
No. 37E—50 ton Hydraulic and Sensitive Arbor Press (hand operated)	150.00
(Can also be furnished in air-oil operated at same price)	
No. 37F—70 ton Hydraulic and Sensitive Arbor Press (hand oper. only)	275.00
Gauge and fittings, \$15.00 extra on all presses.	

**K. R. WILSON**

10-16 Lock Street, Buffalo, N. Y., U.S.A.

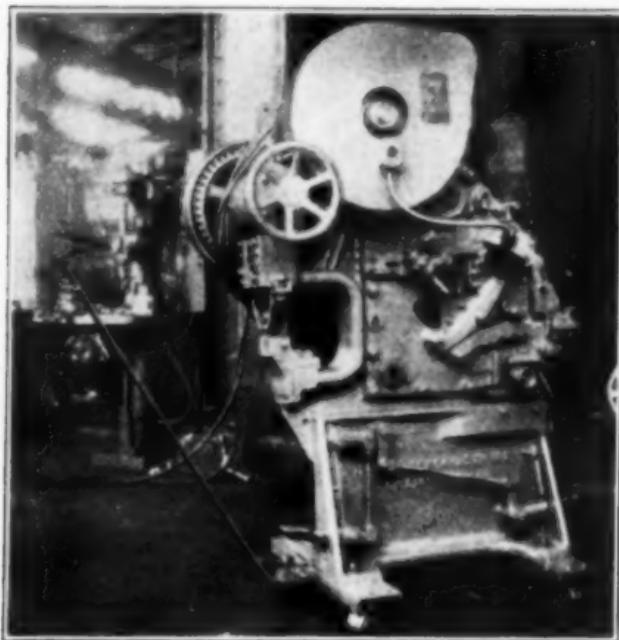
EXPORT DEPARTMENT

90 West St., New York, N. Y.

WEST COAST BRANCH

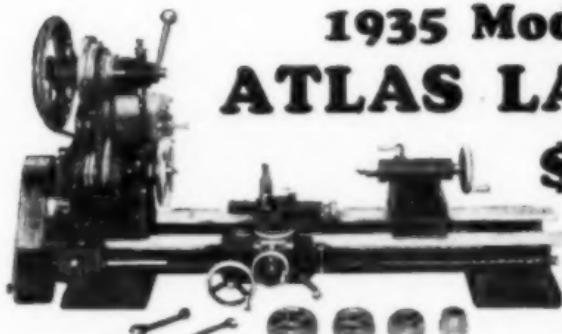
722 Mateo St., Los Angeles

## A Full Size, Fully Portable Combination Shear, Punch and Coper



These portable machines have all the standard features of the cast steel combination machines which the Ryerson Company has been selling for several years. To better meet requirements in certain fields, a ball bearing caster and steel channel mounting has been arranged so that the machine can be easily pulled anywhere about the shop. A fifty foot extension cable provides motor connection to most any location. An extension lamp assures proper working light in dark places. The handle for pulling the machine can be quickly connected at either end so that it is not even necessary to turn the machine completely around to run it in the opposite direction.

The frame is a one piece alloy steel casting with the various attachments built in at the proper working heights. The machine handles punching, plate and bar shearing, angle and tee cutting, angle mitering, coping and notching. Can be furnished in various sizes and capacities. Complete information can be had by addressing Joseph T. Ryerson & Son, Inc., Chicago.



## 1935 Model ATLAS LATHE

**\$87.50**

Complete



### ATLAS DRILL PRESSES



\$13.95  
to  
\$33.50

A larger, more powerful lathe for 1935—a lathe that will do a real job on everything it tackles. Complete screw-cutting, back-gearied. Integral drive. 16 speeds. 10° swing, 24" between centers. Heavy, sturdy back gears give this lathe tremendous power. In our own shop we have repeatedly reduced the diameter of a 3" cold-rolled steel bar **three-quarters of an inch** in a single cut. Self-contained countershaft—ready to run. Automatic, reversible feeds. Graduated compound rest. Other sizes up to 54" between centers.

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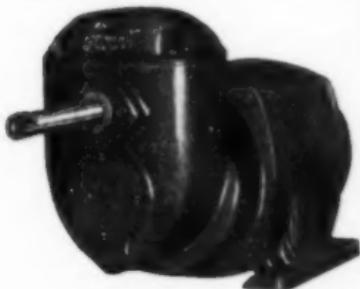
**Atlas Press Company**  
1850 N. Pitcher St., Kalamazoo, Mich., U.S.A.

Please send catalog of metal lathes, drill presses, attachments, also arbor presses.

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### MOTORIZED UNITS

Ratios Up To 6 to 1- $\frac{1}{2}$  to 3 H.P.  
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*Abart*

Gear and Machine Co.  
4832 W. 16th St., Cicero, Ill.

## The New Globe Type "A" Automatic Hopper Fed Tapping Machine

The Globe Tapping Machine Company, 751 Central Avenue, Bridgeport, Conn., designers and builders of high production multi-spindle drilling and tapping machines, have recently developed an entirely automatic hopper feed machine known as the Globe Type "A". It has a production range from 120 to 180 pieces per minute of single hole parts either tapped, drilled, countersunk, threaded, hollow milled, etc. Rate of production depends upon the size of the tap and depth of the thread. Ordinary commercial straight shank high speed taps are used which is an important feature.

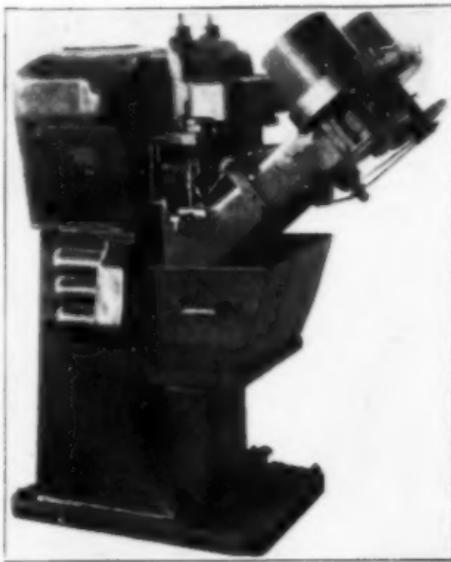


Illustration shows a type A machine with two hoppers, six chutes and six ball bearing tapping spindles, built for a large manufacturer of special nuts and arranged for a special type sleeve nut having a 10-24 thread  $7/16$ " deep. Nuts are dumped into two hoppers and as they revolve are fed down through the six chutes, tapped and ejected at a rate of 150 complete nuts per minute. A similar machine was constructed for one of the large automobile concerns to countersink automobile parts at a rate of 150 complete per minute.

The machine is not limited to handling one part but several different types and sizes of parts can be handled, if necessary, merely by changing the chutes and an adapter ring in the hoppers and relocating the spindles which are adjustable for location. The spindles are so constructed that the tap follows its own lead, permitting the use of different sizes on the same machine. The construction and drive is of the same rugged and compact design typical of other Globe machines and is entirely equipped throughout with ball and roller bearings. Complete information may be obtained by writing to the Globe Tapping Machine Co. at the address given above.

# For Light and Heavy Etching

With 24 Stages of Control.

The LUMA Master Etchtool fulfills every marking requirement that can be done by an electric Etching outfit.

A Production Tool with as many as 24 different stages or varieties of control for regulating the depth of marking, this tool can be used for extra light marking of machine scales, micrometers and fine tools or can be used or extra heavy and deep marking of rough and unfinished iron, cast iron, forgings, steel plates, etc.

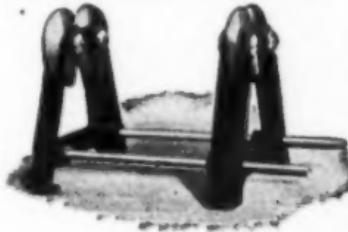
Send for circular giving complete data and details of this modern instrument.



**LUMA ELECTRIC EQUIPMENT CO.**  
DEPT. H.—Main P. O. Box No. 132—TOLEDO, OHIO

**Anderson Ever Ready**

Exceedingly Sensitive



**Balancing Ways**

Easy to Manipulate

Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotar. They require no special leveling, no adjustment, and no centers.

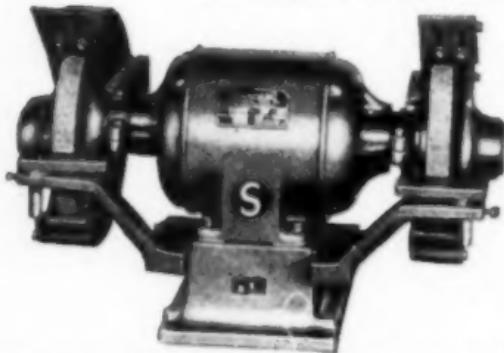
Equipped with glass-hard spindles, chilled steel discs, and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20°	40°	60°	72°	96°	72°
Greatest distance bet. standards.	20°	30°	30°	66°	88°	20°
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.	45	90	150	350	650	—
Code	Bend	Bd	Bs	Bb	Bs	—

**Anderson Bros. Mfg. Co.**  
1915 Kishwaukee St., Rockford, Ill.

## New Standard Electrical Grinders

### 10" Special Bench Grinder



The Standard Electrical Tool Co., 1938-48 West Eighth St., Cincinnati, Ohio have placed on the market a Special Bench Grinder which is equipped with 10" diam. x 1" face grinding wheels.

where requirements are not continuous and is a supplement to their line of Heavy Duty Grinders. Can be furnished with a Buffer Extension in place of grinding wheel on the right side.

### Surface and Tool Grinder

This Surface and Tool Grinder is also a recent development of The Standard Electrical Tool Co.

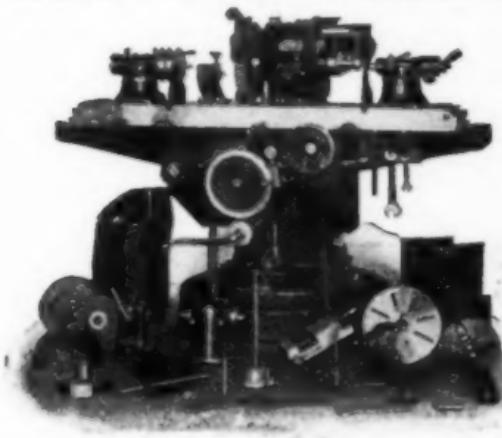
Furnished in 1 H. P. and 2 H. P. sizes, equipped with 10" x 1" and 12" x 1 1/2" grinding wheels, respectively.

The table measures 11" x 21". Five turns of the hand wheel adjusts the table 1". The hand wheel spindle is fitted with an adjustable dial, graduated by thousandths. Maximum distance of wheel to table is 12". The base measures 20" x 28".



(Continued on Page 16)

# SIX Grinders In ONE



12" x 36"

## Thompson Universal Grinder

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

*Let us send you the Illustrated Booklet today!*

**The Thompson Grinder Company**  
1534 West Main St.,      - - -      Springfield, Ohio

# WITTEK

AUTOMATIC  
Roll Feeds

FOR PUNCH PRESSES



Will feed from 0° to 30° per stroke. Fits any size or make of press.

**Fast  
Accurate  
Automatic**

Low in first cost. No upkeep. Built with or without straightener to meet all feeding conditions.

*Write for Bulletin FH  
and free trial offer.*

**WITTEK MFG. CO.**

4305 W. 24TH PL.      CHICAGO, ILL.

Illustration on previous page shows machine fitted with Twist Drill Grinding Attachment and Exhaust Blower Attachment, which is optional. Net weight is 549 pounds. The Standard Electrical Tool Co., now have ready for distribution Price List No. 37, dated November 1, 1934, applying to Catalog No. 37.

## Onsrud Develops High Speed in a Small Grinder, Without Vibration or Overheating



The MD-1 Onsrud Grinder, illustrated above, develops  $\frac{1}{4}$  H. P. at 50,000 R. P. M. and weighs only 1 lb., 15 oz. It is sturdily constructed, and because of its  $\frac{1}{4}$  H. P., it cannot be stopped or slowed down on any grinding operation within its scope. It will never overheat, as it is always operating at room temperature, and is lubricated by a centrifugal 4-speed method.

It makes possible the use of high speed for small grinding wheels, rotary files and cutters, the result of 15 years' specialization in high speed spindles. The Onsrud patented impulse reaction type air turbine rotor is used and the centralized balanced drive is not affected by overloading. A full description of this new High-Speed Grinder can be obtained by writing to the Onsrud Machine Works, Inc., 3906 Palmer St., Chicago, Ill.



# BURKE

## Milling Machine

This milling machine is designed to speed up and economize the milling of work too small to be profitably handled on larger millers.

It is one of a line of five millers that are fast, accurate and dependable.

No. 3 Hand Feed Milling Machine

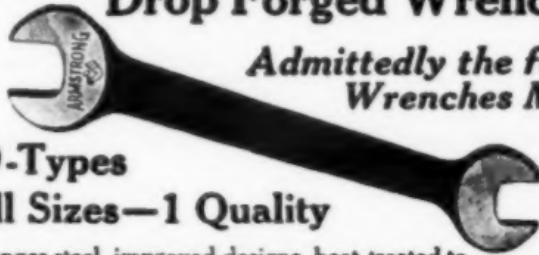
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**The Burke Machine Tool Co.,** 297 E. 16th St.,  
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# ARMSTRONG

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## Drop Forged Wrenches



50-Types

All Sizes—1 Quality

Stronger steel, improved designs, heat treated to proper balance of stiffness and tensile strength accurately milled to all standard openings, finished in black baked enamel with heads ground bright and plainly marked for size. Buy ARMSTRONG WRENCHES with confidence, knowing that they will stand up under abuse and give long satisfactory service.

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"The Tool Holder People"  
308 N. Francisco Ave., CHICAGO, U.S.A.



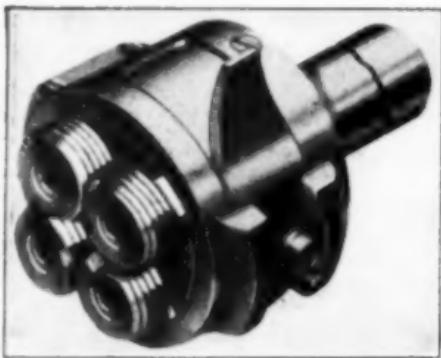
## **TANNEWITZ** **Abrasive Cut-off Machine**

Uses Abrasive Wheels or Saws, and instantly swivels and cuts any angle from 45° left to 45° right, doing clean, instantaneous work on metal bars, shapes or tubes.

**THE TANNEWITZ WORKS**  
**GRAND RAPIDS, MICH.**

---

### **Announcing a New Line of National Acme Circular Chaser Die Heads for Brown & Sharpe Automatic Screw Machines**



The National Acme Company, Cleveland, Ohio, announces a new line of self opening die heads which have been developed to meet the demands for an accurate, compact head with long chaser life, for use on all sizes of Brown & Sharpe single spindle automatic screw machines. The minimum cutting capacity is .056.

They cut either straight or tapered threads in a wide variety of thread forms, right or left hand.

Each part is made of a special alloy steel, heat treated and precision ground, and all parts are interchangeable. The chasers are ground on the thread forms to extremely close limits of accuracy, and they can be repeatedly ground until the periphery has been used up. Sharpening of chasers does not change the length of thread because the die chaser is always in the same relative plane until the entire circumference has been ground away.

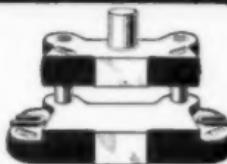
The closing attachment is usually located so that the die head is closed when turret is indexed to operating position. This eliminates any possibility of die head opening when the turret is indexing.

The National Acme Company will be glad to mail full description of their new Circular Chaser Die Heads upon request.

BETTER-MADE  
DIE SETS

24  
DIFFERENT  
STYLES

BAUMBACH



STANDARDIZED

DIE SETS

Semi-Steel

AT LOWER  
COST

OVER  
95,000  
SIZES

Drop Forged Steel

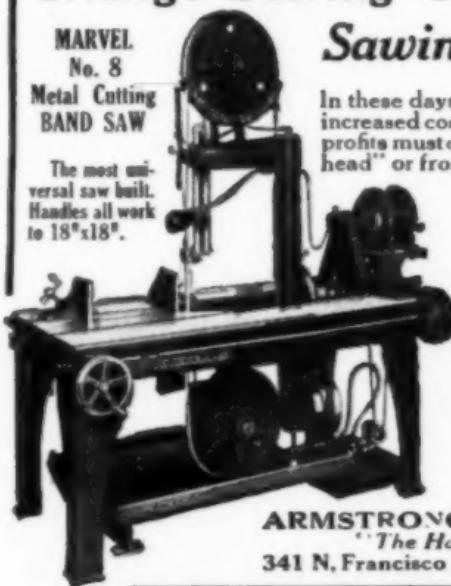
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1810 South Kilbourn Ave., CHICAGO, ILLINOIS

*Change Sawing Costs to  
Sawing PROFITS*

MARVEL.  
No. 8  
Metal Cutting  
BAND SAW

The most uni-  
versal saw built.  
Handles all work  
to 18" x 18".



In these days of levelled selling prices,  
increased costs and coded charges, extra  
profits must come from decreased "over-  
head" or from extended operations.

Install a MARVEL No. 8  
and *pay yourself* the  
"warehouse cutting ex-  
tras." Eliminate slow  
and expensive roughing  
to size and shape. Cut  
inventory investment by  
stocking fewer sizes of  
steel . . . *pay yourself*  
the profit on all sawing  
operations.

*Write for Bulletin*

**ARMSTRONG-BLUM MFG. CO.**  
"The Hack Saw People"  
341 N. Francisco Ave., CHICAGO, U.S.A.

# VICE

A good one for Driller,  
Miller, Shaper, or Planer.

6<sup>3</sup>, 9<sup>3</sup> and 12<sup>3</sup> Jaws



Fig. 2

Without Jig  
Attachments

## DRILL SPEEDER

or  
H. S. Drilling  
Attachment

Increases  
the Speed  
3 Times



Send, or  
Circulars  
of ALL

## KNURL HOLDER

for Turret Lathe  
Adjustable to any size within capacity.



Swivel Lugs  
Shank to suit Turret

**THE GRAHAM MFG. CO.**  
78 Willard Ave., PROVIDENCE, R. I.

## Handbook on Cemented Carbides

Thomas Prosser & Son, 15 Gold St., New York City, announce that they have prepared for distribution a handbook and catalog on WIDIA Cemented Carbides, as used in tools, wear-resisting parts, and other similar applications. The handbook contains twenty-four pages and cover, and is 8½x11" in size.

This book covers the following points: method of manufacture; salient characteristics; advantages to be obtained through the use of WIDIA Cemented Carbides; various grades available and their particular applications; recommendations regarding the modern methods of use of the cemented carbides; proper tool design; practical application of the metal cutting theory for practical men—the advantages to be obtained from high speeds possible with cemented carbide tools; recommended grinding procedure; and brazing instructions—how to make your own cemented carbide tools.

(Continued on Page 22)

STANDARDIZATION PAYS

# Universal Joints

Steel and Bronze



*Send for Circular giving specifications  
and prices on complete line*



BOSTON GEAR WORKS, INC.  
DEPT. HMT. NORTH QUINCY, MASS.

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO  
Sales Offices in Springfield, Mass., Utica, N. Y. and Dayton, Ohio

# BOSTON GEARS

## TAPPING DEVICES

HAVE BEEN OUR SPECIALTY FOR OVER 25 YEARS

NOW THE NEW  
“PROCUNIER”

**SENSITIVE  
HIGH SPEED**

**FRICITION DRIVE**  
At Spindle Speed

**BALL**

*Also other sizes  
and styles*

**TAPPING  
ATTACHMENT**

**FRICITION REVERSE**  
At Twice Spindle  
Speed

**BEARINGS**

*Write for our catalog  
with prices*



**PROCUNIER SAFETY CHUCK CO.**

14 S. Clinton St.,

•••

Chicago, Ill.

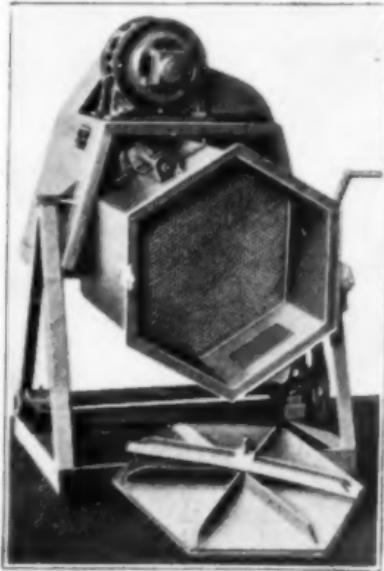
The handbook is profusely illustrated, and several pages are devoted to photographs showing some recent applications of WIDIA Cemented Carbide to various special tools, such as intricate cutters, as well as various sand blast nozzles, centerless grinder rests, thread guides and electrical contact points.

Thomas Prosser & Son will gladly forward one of these handbooks, without charge, to anyone who is interested, upon request.

### New "Ideal" Burnishing Barrel

A Burnishing Barrel which permits the handling of small batches with the economies effected by automatic transfer of burnishing balls, is announced by N. Ransohoff, Inc. Hitherto the "Ideal" system by which balls and work are automatically separated and balls recharged into burnishing section without manual handling has been confined to large batches.

While this new "Ideal" Barrel may be charged with work as large as it will accommodate, it is equally effective on small lots, which are loaded through the small door.



When the burnishing is completed, the tilting of the barrel causes the balls to sift out of the work and return to the ball compartment.

No labor is required for handling balls. Charging and discharging are speeded. Because a heavier load of balls can be economically used, finishing is achieved more rapidly and the quality of the work is said to be greatly improved.

A full description of the new "Ideal" Burnishing Barrel will be furnished on request by N. Ransohoff, Inc., Cincinnati, Ohio.

---

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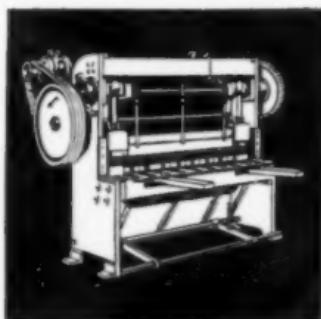


in their line—Head rivets from smallest to  $\frac{5}{8}$ " diameter either by NOISELESS SPINNING or VIBRATING HAMMER method—Sizes to meet all needs—Types include Vertical and Horizontal Multiple Spindles.

*Write for literature—and  
don't forget to send  
samples.*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

## Chicago Steel Power Shears



Lengths 3 to 16 ft.

Capacities, 14 ga. to 1" Plate.

Unbreakable Steel  
Construction.

All Modern Features for Fast  
and Accurate Shearing.

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**DREIS & KRUMP MFG. CO.**

*Pioneer Manufacturers of Steel Plate Constructed  
Sheet Metal Working Machinery*

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4880 West 13th St., Chicago, Ill.

### Sundstrand Indexing Base



In designing tooling and equipment for thousands of milling operations, the engineers of the Sundstrand Machine Tool Co., Rockford, Ill., have developed a large number of indexing fixtures of various types.

Many of these took the form of two or more holding devices mounted upon a two-part base so arranged that the upper portion could be rotated and locked securely in two or more positions.

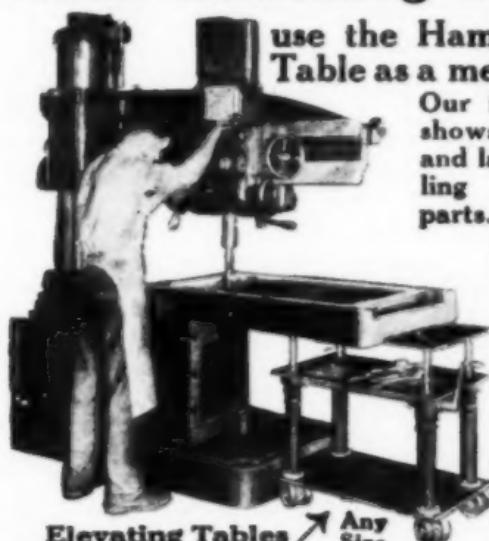
There being no suitable base of this character on the market, the Sundstrand engineers designed the Sundstrand Indexing Base, which is now being manufactured in several sizes for use on any miller or other machine tool.

This Index Base is a tool of many applications. A few set-ups are illustrated and described in their folder—enough to indicate some of its possibilities. The Sundstrand Machine Tool Co. will gladly mail a copy to interested parties upon application.

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HOW—can our advertisers know that your inquiry comes from Hitchcock's Machine Tool Blue Book unless you tell them? When writing them, won't you kindly say that you saw it in Hitchcock's? Thank you.

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use the Hamilton Elevating Table as a means of support.

Our illustrated circular shows how to save time and labor in safely handling heavy machinery parts.

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We design and build dies, jigs, and time saver machinery.

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Ohio, U.S.A.

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*That's bad enough—but the real expense comes in stripping the threads when you remove the broken tap.*



### **The Walton Tap Extractor**

offers an effective, instantaneous way of overcoming this loss. Its steel fingers inserted in the broken tap remove it intact. An apprentice can operate it!

**Made in three and four-flute styles**

*Often pays for itself in the 60 day trial allowed*

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Resistance values and associated data may now be determined without mathematics or headaches by means of a collection of self-calculating resistance charts issued by the engineering staff of Hardwick, Hindle, Inc., 40 Herman St., Newark, N. J.

The charts provide a simple method for determining the relation between resistance, voltage, current and power of any resistor or rheostat. By laying a straight-edge on any two known values shown on the charts, the unknown value is read on a third scale. The collection of self-calculating charts will be sent gratis on request.



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No Stray Numbers  
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1 to 8 Wheels.

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Stamp &  
Tool Co.**

Huguenot Park,  
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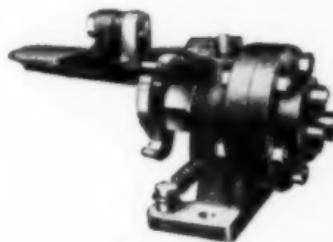
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**Foot Operated**

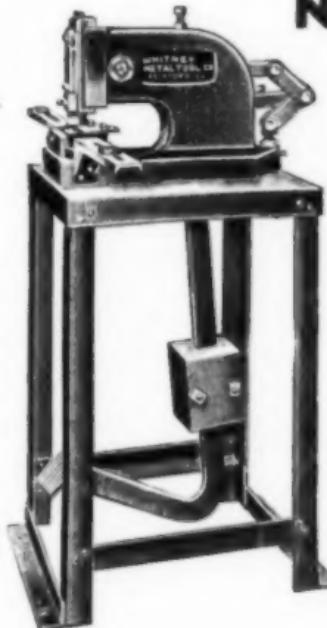
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**A Very New Modern Machine Durably Built**

**CAPACITY: 2" hole in 16 gauge.**

**Throat depth 7"; height of throat 4".**

**Stroke of ram: 1" travel.**

**Speed of machine 100 holes per minute.**

**Toggle action makes it a very powerful Foot Press.**

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**Four sizes: 38", 55", 76", 90".**

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Hardening  
Furnace

TYPE NO. 1705

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\$36

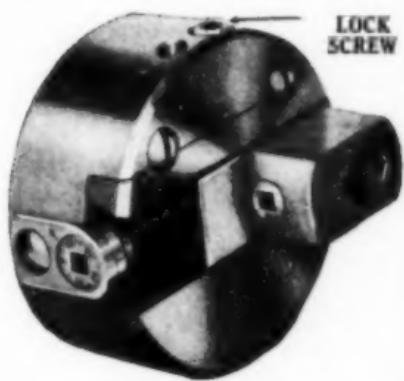
With 10 ft. Alloy Wire  
connector block and a  
No. 8 gauge insulated  
thermo couple 24" long  
without protection tube

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Illinois Testing Laboratories, Inc.  
150 W. Austin Ave., Chicago, Ill.

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No. 30



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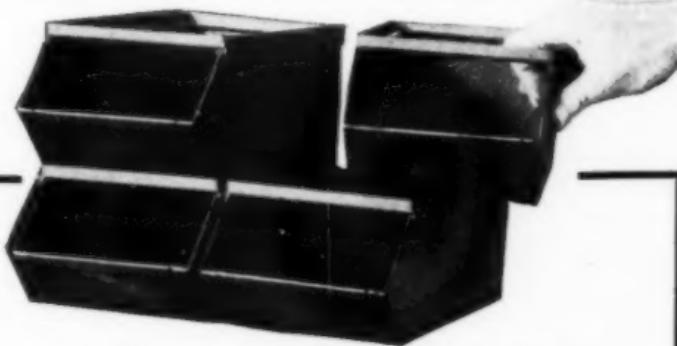


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1/2 TO 100 K. V. A.

ELECTRIC SAW BRAZING MACHINES, BUTT,  
WIRE, PORTABLE AND SPECIAL WELDERS

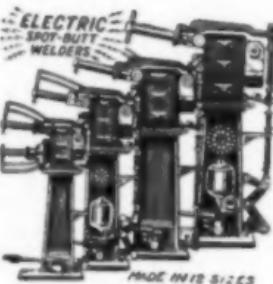
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In  
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Up To  
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**Vise**



**Milling Machine**

**Vise**

Jaws open 6¾"

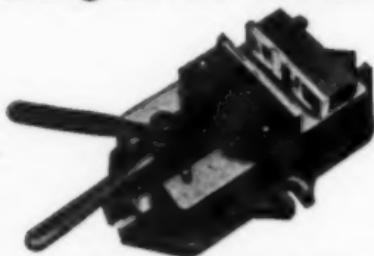
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Designed for Modern Production Needs!



## Hartford Milling Vise

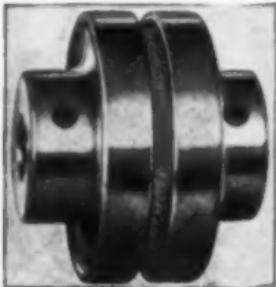
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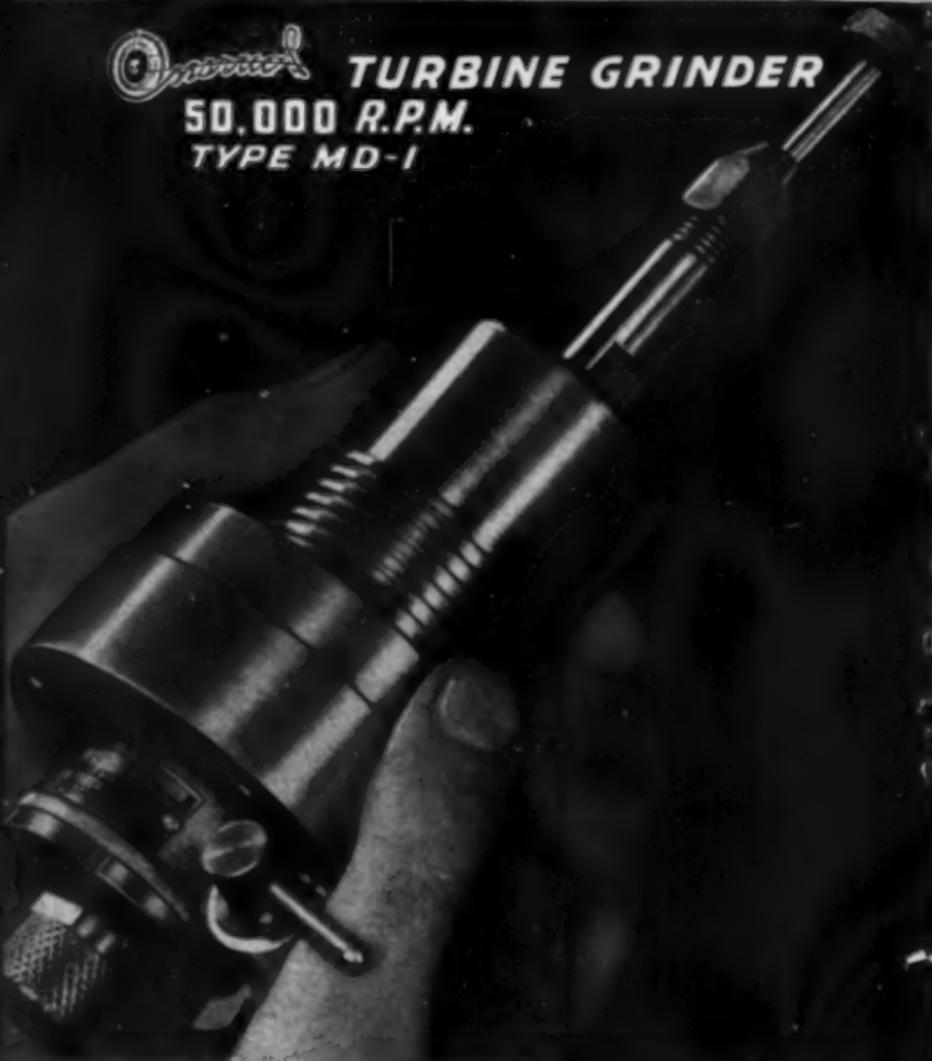
11 lb. 15 oz.

1/4 H. P.

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50,000 R.P.M.  
TYPE MD-1



**ONSRUD MACHINE WORKS, INC.**

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1 lb. 15 oz.

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Sundstrand Machine Tool Co., Rockford, Ill.

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Lewthwaite Mfg. Co., T. H. 311E, 47th, N. Y.

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Meyer Blower Co., Wm. W., 1845 West  
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Rockford Drilling Mfg. Co., Rockford, Ill.

### Drilling Machines, Horizontal

Rockford Drilling Mfg. Co., Rockford, Ill.

### Drilling Machines, Multiple Spindle

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Rockford Drilling Mfg. Co., Rockford, Ill.

### Drilling Machines, Portable Electric

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Strand Co., N. A., 5001 N. Lincoln St., Chicago

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Burke Machine Tool Co., Conneaut, Ohio  
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### Drilling Machines, Vertical

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Foots-Burt Co., Cleveland, O.  
Rockford Drilling Mfg. Co., Rockford, Ill.

### Drives, Lathe

Cullinan Wheel Co., 1350 Altgeld St., Chicago

### Electrical Instruments

Illinois Testing Laboratories, Inc., 150 W.  
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### Elevating Tables

Hamilton Tool Company, Hamilton, Ohio

### Emery Wheel Dressers and Cutters

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### Emery Wheel Dressers, Diamond

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Chicago Gear Works, 700 W. Jackson Blvd.,  
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Chicago, Ill.

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Onsrud Machine Works, Inc., 3800 Palmer  
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### Knurls and Holders, for Turrets

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Reed Small Tool Works, Worcester, Mass.

### Lapping Machines

Omarud Machine Works, Inc., 3800 Palmer St., Chicago, Ill.

### Lathe Drives

Cullinan Wheel Co., 1869 Altgeld St., Chgo.

### Lathe, Bench

Atlas Press Co., Kalamazoo, Mich.

### Lathe, Manufacturing

Sundstrand Machine Tool Co., Rockford, Ill.

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### Mandrels, Expanding

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### Micrometers

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### Milling Attachments

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### Milling Machines, Bench

Burke Machine Tool Co., Connecticut, Ohio  
Sundstrand Machine Tool Co., Rockford, Ill.

### Milling Machines, Hand

Burke Machine Tool Co., Connecticut, Ohio  
Sundstrand Machine Tool Co., Rockford, Ill.

### Milling Machines, Plain

Burke Machine Tool Co., Connecticut, Ohio  
Sundstrand Machine Tool Co., Rockford, Ill.

### Motors, Polyphase

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U. S. Electric Mfg. Co., 1510 So. Western Ave., Chicago, Ill.

### Motors, Variodrive

U. S. Electrical Mfg. Co., 1510 So. Western Ave., Chicago, Ill.

### Numbering Machines

Numberail Stamp & Tool Co., Staten Island, N. Y.

### Pins, Leader And Dowel

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Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

### Pipe Cutters

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### Pipe Vises

Ridge Tool Co., Elyria, Ohio

### Pipe Wrenches

Ridge Tool Co., Elyria, Ohio

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W. H. Nicholson & Co., Wilkes-Barre, Pa.  
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### Presses, Punch

Allsteel Press Co., 12015 So. Peoria Street, Chicago, Ill.  
Lewthwaite Mch. Co., T. H., 811 E. 47th, N. Y.  
Dreis & Krump Mfg. Co., 7440 Leomin Blvd., Chicago, Ill.

### Punch Press Feeds

Wittek Mfg. Co., 4809 W. 34th Place, Chgo.

### Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

### Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago  
Buffalo Forge Company, Buffalo, N. Y.  
Lewthwaite Mch. Co., T. H., 811 E. 47th, New York  
Whitney Metal Tool Co., Rockford, Ill.

### Punches and Dies

Lewthwaite Mch. Co., T. H., 811 E. 47th, N. Y.

### Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

### Pyrometers, Portable & Stationary

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago, Ill.

### Ratchets

Chicago Gear Works, 768 W. Jackson Blvd., Chicago, Ill.

### Reamer Holders

W. H. Nicholson & Co., Wilkes-Barre, Pa.

## Classified Finding Index

### Riveters, Multiple Spindle

Grant Mfg. & Mch. Co., Bridgeport, Conn.

### Speed Reducers, Motorized

The Production Equip. Co., Cleveland, O.

### Riveters, Pneumatic

Grant Mfg. & Mch. Co., Bridgeport, Conn.

### Spot Welding Machines, Speed.

Kisler Engineering Co., Inc., Newark, N. J.

### Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

### Sprockets

Boston Gear Wks. Inc., North Quincy, Mass.

Chicago Gear Works, 769 W. Jackson Blvd.,

Chicago, Ill.

Cullinan Wheel Co., 1859 Altgeld St., Chgo.

### Rod Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

Lewthwaite Mch. Co., T. H., 811 E. 47th, N. Y.

### Straightening Machines

Whitney Metal Tool Co., Rockford, Ill.

### Routing Machines

Onsrud Machine Works, Inc., 2900 Palmer St., Chicago, Ill.

### Stud Setters

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago

### Scraping Machines

Anderson Bros. Mfg. Co., Rockford, Ill.

### Tap Extractors

Walton Co., Hartford, Conn.

### Shafts, Flexible

Strand Co., N. A., 8001 N. Lincoln St., Chgo.

### Tap Holders

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago

### Shaping Machines

Osborne & Sexton Machy. Co., Columbus, O.

### Tapping Attachments

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.

### Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago

Lewthwaite Machine Co., T. H., 811 E. 47th St., New York

Whitney Metal Tool Co., Rockford, Ill.

### Tapping Jigs, Universal

Heuser Mfg. Co., 1628 No. Paulina St., Chicago, Ill.

### Shear, Power

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

### Tapping Machines and Attachments

Burke Machine Tool Co., Cooncaville, Ohio

Procurier Safety Chuck Co., 14 S. Clinton St., Chicago, Ill.

Whitney Metal Tool Co., Rockford, Ill.

### Shears, Slitting

National Machine Tool Co., Racine, Wis.

Dreis & Krump Mfg. Co., 7440 Loomis Blvd., Chicago, Ill.

### Thermometers, Resistance Type

Illinois Testing Laboratories, Inc., 150 West Austin Ave., Chicago, Ill.

### Special Tools and Machinery

American Tool Works, Inc., Hartford, Conn.

### Threading Machines, Automatic, Stud

Grant Mfg. & Mch. Co., Bridgeport, Conn.

### Speed Reducers

Abert Gear & Machine Co., Cicero, Ill.

Boston Gear Works, Inc., North Quincy, Mass.

Chicago Gear Works, 769 W. Jackson Blvd., Chicago, Ill.

Cullinan Wheel Co., 1859 Altgeld St., Chgo.

Footes Gear Works, 4800 West 18th St., Chicago, Ill.

### Threading Tools

Armstrong Bros. Tool Co., 809 N. Francisco Av., Chicago

Ridge Tool Co., Elyria, Ohio.

### Tool Holders

Armstrong Bros. Tool Co., 809 N. Francisco Av., Chicago

Western Tool & Mfg. Co., Springfield, O.

## Classified Finding Index

### Tools, Boring

Armstrong Bros. Tool Co., 300 N. Francisco Av., Chicago

### Tools, Lathe and Planer

Armstrong Bros. Tool Co., 300 N. Francisco Av., Chicago

### Tools, Machinists'

Armstrong Bros. Tool Co., 300 N. Francisco Av., Chicago

### Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

### Universal Drill Jigs

Heuser Mfg. Co., 1638 No. Paulina St., Chicago, Ill.

### Universal Joints

American Tool Works, Inc., Hartford, Conn.  
Boston Gear Works Inc., Norfolk Downs, Mass.

### Used and Rebuilt Machinery

Ajax Mfg. Co., Pittsburgh, Pa.  
American Machinery Co., Cleveland, Ohio

Atlas Equipment Co., 114 S. Clinton St., Chicago, Ill.

Bernstein, Geo. M., 221 N. Elizabeth St., Chicago, Ill.

Bickford & Co., H., Lakesport, N. H.

Blesser Mfg. & Mch. Co., Springfield Ill.

Brown Machinery Co., St. Louis, Mo.

Brownell Machinery Co., Providence, R. I.

Cincinnati Mch. & Supply Co., Cincinnati, O.

Clark Machinery Co., Cleveland, Ohio.

Clinton Machinery Co., 32 So. Clinton St., Chicago, Ill.

Consolidated Machine Shop, 2852 Fulton Chicago, Ill.

Davis Machinery Co., Toledo, Ohio.

Eastern Machinery Co., Cincinnati, O.

Byron Belting & Mch. Co., Elgin, Ill.

Eiserman & Co., Louis E., 1761 Elston Ave., Chicago, Ill.

Kosler Machinery Co., E. L., 822 Koss St., Chicago, Ill.

Goldman, Harvey H., Detroit, Mich.

Harison Machinery Equipment Co., 30 S. Clinton St., Chicago, Ill.

Hill, Clark & Co., 846 W. Washington Blvd., Chicago, Ill.

Indianapolis Machinery & Supply Company, Indianapolis, Ind.

Interstate Mch. Co., 120 S. Clinton, Chicago.

Interstate Machinery Corp., Jersey City, N. J.

Irquois Machinery Co., Buffalo, N. Y.

Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, Ohio.

Kennard-Rafkin Mch. Corp., Jersey City, N. J.

Klauber Mch. Co., E. L., St. Louis, Mo.

Lucas & Son, J. L., Bridgeport, Conn.

McDonald Machinery Co., St. Louis.

Meyer Blower Co., Wm. W., 1045 West Washington Blvd., Chicago, Ill.

Midland Steel & Equipment Co., 402 South Clinton St., Chicago, Ill.

Midwest Equipment Co., 620 W. Lake St., Chicago, Ill.

Mid-West Machine Tool & Supply Company, Davenport, Iowa.

Miles Machinery Co., Saginaw, W. S., Mich.

Morey & Co., 45 Mill St., Astoria, Long Island, N. Y.

### Used and Rebuilt Machinery—Cont.

Noble Machinery Co., 217 Centre St., New York, N. Y.

Norton-Broadway Machinery Co., Cincinnati, Ohio

O'Brien Machinery Co., Philadelphia.

Ovatt & Co., D. C., Cleveland, Ohio.

Osborne & Sexton Mch. Co., Columbus, O.

Reliance Machinery Sales Co., Pittsburgh, Pa.

Reynolds & Son, George T., Providence, R. I.

Russell Machine Co., Pittsburgh, Pa.

Scott-Bansbach Mch. Co., 4607 W. 20th St., Chicago.

Segal Machinery Co., 809 W. Lake St., Chicago, Ill.

Simmons Machine Tool Corp., Albany, N. Y.

Stegeman Machinery Co., Milwaukee, Wis.

Strong, Carlisle & Hammond Co., Cleveland.

Sun Machinery Co., 28 Van Buren Street, Newark, N. J.

United Mch. & Supply Co., St. Louis, Mo.

Victor Machinery Co., 128 S. Clinton Street, Chicago, Ill.

Victor Machinery Exchange, 251 Center St., New York City.

West Penn Machinery Co., Pittsburgh, Pa.

White Mch. Co., A. D., 100 N. Jefferson St., Chicago.

Wiglesworth Mch. Co., Cambridge, Mass.

Wohlnick Machinery Sales, 21st & Marshal Hvd., Chicago, Ill.

Zeeve, Alex., 2107 Woolworth Bldg., New York City.

### Valves, Foot, Lever & Solenoid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

### Vises, Drilling Machine

Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago.

Armstrong Bros. Tool Co., 300 N. Francisco Av., Chicago.

Graham Manufacturing Co., Providence, R. I.

Heuser Mfg. Co., 1638 No. Paulina St., Chicago, Ill.

Martin Tool & Die Works, J. E., Springfield, O.

### Vises, Machinists'

Western Tool & Mfg. Co., Springfield, O.

### Vises, Milling Machine

Graham Manufacturing Co., Providence, R. I.

Hartford Special Mch. Co., Hartford, Conn.

### Vises, Shaper

Graham Manufacturing Co., Providence, R. I.

### Welding Machines, Electric Spot

Eisler Engineering Co., Inc., Newark, N. J.

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### Wheel Dressing Diamonds

Mendes Cutting Factorles, Inc., 505 Fifth Ave., New York City.

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Chicago Wheel & Mfg. Co., M. C. Tool Div., 116 S. Aberdeen St., Chicago, Ill.

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Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of 60 cents a line across the page, each issue, plus \$3.00 for name and address. Minimum charge, \$6.00. No display permitted.

**Write directly to those offering the machines for sale,** for prices and full descriptions. If what you seek is not advertised, use the blank enclosed to make known your wants in either new or used machinery and the publisher will pass them along to the advertisers.

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National Acme  $2\frac{1}{2}$ " 4 spindle; Gridley  $2\frac{1}{2}$ " 4 spindle  
Lathes, 12"x6" Seneca Falls; 13"x6" Fairbanks; 16"x6" Hamilton; 16"x9"  
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Grinder, Pratt & W. 14", model B.  
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Lathe, 30"x15" Niles-Bement-Pond.  
Send for Complete Stock List.

Lathe, 40"x26' Flather.  
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Miller, No. 3 Cin. h. p. universal.  
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Miller, No. 3 Cincinnati Universal.

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Drills, 4 spin. Avey No. 2, 12" o. h.  
Drills, 3 spin. Avey No. 2, 12" o. h.  
Drills, 3 spin. Avey No. 2, 8" o. h.  
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Drills, 5 spin. Detroit, m. d.  
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 Punch, No. 7 Thomas, 8" spc. tbl.  
 Punch, No. 12 Thomas, 14", 1", 78" thrt.  
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 Rolls, bend, 10"x1" Wicks, pyr. t. m. d.  
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 Straightner, 72" Newbold, 9-roll m.d.  
 Straightner, 14" & 4" Abramson.  
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 Upsetters, 1" to 6".  
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 Welding gen., arc, 200amp. West. 220.  
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## Marr-Galbreath Machinery Co.,

Quality Not Reflected in These Low Prices.

Air comp., gas dr., 285 cu. ft. Boring mill, No. 9 G. & L., 3 $\frac{1}{2}$ " bar. Boring mill, 30" Colburn, tr. hd. Boring mill, 36"-44" N-B-P., sh.m.d. Boring mill, 72" Cin "PRT". Brake, steel, Chgo. 8"x14 ga. b. d. Brake Keene toggle, 10"x20 ga. Die sinker, No. 3 P. & W., r. t. Drill, 26" Rockford, tap. att. Drill, 20" Barnes, all geared. Engine, gas, 55 h. p. West, vert. Engine, Diesel 166 h.p. DeLaVergne Folder, 36" Niagara, open throat. Furnace, gas tempering, 10x10", pot. Gear cutter, 18" Newark. Gear cutter, (Pinion) 1x1" S. & C. Generator, 125 k. v. a. 3/60/220/900. Generator, 50 k. v. a. 3/60/220/1200. Grinder univ. t. & c., No. 2 Grn'fd Hack saw, 6x6" Milford, m. d. Hammer, 20 lb. United, power. Hammer, 40 lb. Bradley, helve. Hammer, 125 lb. Beaudry power. Hammer, 200 lb. Bradley helve. Hammer, 800 lb. Erie s. f. steam. Hammer, 1000 lb. Chbg. steam drop. Header, cold 8" Waterbury-F. Keyseater, 24"x24" Morton. Lathe, 26"x12" Bridgeford, t. a. Lathe, 26"x16" Bridgeford g.h., t. a. Lathe, 26 48"x9" centers, McCabe. Lathe, 20"x8" Hendey, t. a. Lathe, 30"x10" Hendey, t. a. Lathe, 20"x10" American gd. hd. Lathe, 14" Fay automatic. Magnetic chuck, 14"x40" Heald. Miller, universal No. 1 $\frac{1}{2}$  Becker. Miller, plain, No. 2 heavy Ohio. Miller, No. 4 Ohio, table 101". Miller, plain No. 2-B Milw. m. d. Miller, plain No. 3 Cincinnati. Milling & keyway att., No. 5 So. B. Pipe machine, 8" Jarecki. Planer, 20"x30"x10' Liberty, 2-hds. Planer, 30x30"x10' W.-P. 2-heads.

## 55 Water St., Pittsburgh, Pa.

Press, No. 1 Manly arbor. Press, Arch, No. 3A Mossberg. Press, Arch, No. 3A Mossberg dial feed. Press, Arch No. 3-A Mossberg roll feed. Press, D.C. No. 138A Stoll, 3" stroke. Press, embossing 50-ton Ferracute. Press, horn, No. 2 Michigan. Press, horn, 42-h.p. Toledo. Presses, o. b. i., No. 4 Toledo. Press, o. b. i., No. 3 Niagara. Press, o. b. i., No. 4 Niagara. Press, o. b. i., No. 21 Bliss. Press, screw, No. 87 Niagara. Press, S. S. No. 74 $\frac{1}{2}$  S. Bliss s. c. Press, S. S. No. 78 $\frac{1}{2}$  Bliss. Press, Wheel, 60-ton, 34" W-S. Punch & shear, Pels tr. comb., 1 $\frac{1}{2}$ "x1". Punch & shear, No. 52 Beloit. Punch & shear, s. e., No. 6 L. & A. Punch & shear, s. e., No. 4 L. & A. Punch & shear, d. e., cap. 1 $\frac{1}{2}$ "x1". Punch, gang, 48", 40 tons. Rolls, 10"x3" U. S. Forming. Saw, Cold, Espen-Lucas, 7" rds. Shapers, 16" G. & E., "H. D." m.d. Shaper, 24" G. & E. "H. D." for motor drive. Shaper, 20" Cincinnati, motor dr. Shaper, 21" Smith & Mills. Shaper, 24" P. & J. "RT" m. d. Shear, Schatz combined, 219 FA. Shear, slitting, No. 24-S Buffalo. Shear, gap, 42"x $\frac{1}{2}$ "x18" gap. Shear, squaring, 10"x16 ga. Ohl. Shear, throatless, 1" Lennox. Slotter, Garvin, die, 12" R. T. Tapping chucks, 3/16", 1" and 2". Testing machine, 100-ton Olsen. Testing machine, Cement. Turret, No. 4 W. & S. power feed to turret. Turret, 2"x24" J. & L. chuck. Welder, arc, 200 amp. Lincoln, (4).

Partial List. Get Our Complete Stock List.

## USED AND REBUILT MACHINERY

### FOR SALE BY

#### **United Machinery & Supply Co., 1241 Walton Ave., St. Louis, Mo.**

Bolt cutter, 1" with 3 Landis heads.  
 Brake, 10'x3/16" Ohls, m. d.  
 Drill, multiple, 10 spindles, No. 2.  
 Drill sharpener, full set dies.  
 Lathe, Stark precision, 40 collets.

Miller, Cincinnati, production.  
 Sand pumps, 6" and 10".  
 Saw, Hunter hot, 24", motor drive.  
 Shear, 7 1/2" capacity.  
 Welders, arc, belt drive, 300 amp.

### FOR SALE BY

#### **Midwest Equipment Co., -**

Air compressor, 9x8, I. R. compl.  
 Air compressor 19x12x16, I. R. compl.  
 Grinder, universal, H. & S., No. 2.  
 Grinder, No. 6 Gardner, b.b., 28" discs.  
 Grinder, Cinc. No. 1 tool & cutter.  
 Hack saw, Napier, pwr., 10x10" cap.  
 Hoists, 2-ton Shepard, electric, a. c.  
 Lathe, 17x8 Sidney, l.c.g., complete.  
 Lathe, 16x8 Hendy, q. c. g., tap, att.  
 Lathe, 14x6 Sidney, quick ch. gear.  
 Lathe, 34x10 Wolcott, q. c. g., comp.  
 Lathes, Stark 4" & 5" cap. with col.  
 Miller, No. 5 B. & S., plain.  
 Miller, No. 1 Kempsmith pl., comp.

Miller, No. 1 1/2 Rockford, plain.  
 Miller, No. 2 Becker, vertical.  
 Radial drill, 3' Cincinnati Bickford.  
 Screw machines, No. 2 B. & S. automatic with slotting attachment.  
 Screw machines No. 00 and No. 0 Brown & Sharpe, automatic.  
 Screw machines, No. 4 Warner & S.  
 Screw mch., Nos. 4 & 3 Foster, w. f.  
 Shapers, 14", 16", 20" and 24".  
 Shear, Quickwork, pwr. dri. 14 ga. cap.  
 Shear, Beloit No. 52.  
 Welder, arc, 300 amp. Wilson, m. d.

Planers, Lathes, Screw Machines, Air Compressors, Woodworking Machines.

### FOR SALE BY

#### **Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.**

Miller, No. 2H B. & S. plain, cone type, with vise, c/s and arbors	\$ 400.
Miller, No. 2 MU. Garvin universal, fully equipped	350.
Miller, 12" Cincinnati, mfg. type, s. p. d., vise and pump	150.
Miller, Briggs, G. & E. manufacturing, 16"	75.
Miller, No. 5 Becker vertical, no rotary	300.
Miller, No. 7 Becker, Lincoln type	75.
Miller, Ingersoll slab, 42"x36"x9"	400.
Planer, 24x24x6 Ohio heavy duty, 1 head	250.
Planer, 36"x36"x12" Cincinnati with 2 heads	800.
Press, No. 0 Consolidated bench o.b.i. with mtr., 1 1/2" str., 350 lbs. 7 1/2 ton	100.
Press, No. C4 Ferracute o. b. i., 2" stroke, 3800 lbs., 35 ton capacity	300.
Press, No. 64 V. & O., s. s. d. c., 71 ton, 24" str., 22" between	700.
Punch, 10" throat, single end, Kneeland or Spaulding	each 100.
Riveter, No. 3 A. H. D. High speed hammer, cap. 1/2", belt driven	150.
Riveter No. 5 A. High speed hammer, cap. 1/2", motor shelf	275.
Saw, No. 2 Klem, band, for metal cutting, belt drive	300.
Saw, Napier, model B, band, for metal cutting, belt drive	300.
Scieroscope, Shore complete with stand and blocks, model C	125.
Shear, 30" Bertsch, 16 gauge, 12" gap, foot power	75.
Separator, National, oil, 11 quart capacity	50.
Separator, oil, American 1 1/2 bushel	200.
Slotting attachment for No. 3 Kempsmith miller	100.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s	350.
Shaper, 24" Walcott, H. D., back geared crank, vise and c/s	400.
Swedger, No. 4 Etna, 2" tube capacity	250.
Tapper, Rickert-Shafer, 1" cap., bench type	50.
Tapper, No. 1 Givrin Automatic, capacity 1/2" iron, 1/2" steel	75.
Threader, 1" H. & G., floor type	100.
Turret lathe, 24x10" Milholland, for chuck and bar work	400.
Vertical attachment for No. 2 Brown & Sharpe miller	100.
Welder, butt, Toledo, 8 KW., capacity 1/2" round	150.
Welder, spot, American, 12 k. v. a., 12" throat, Type L. D. A.	200.

## USED AND REBUILT MACHINERY

### FOR SALE BY

#### Mid-West Machine Tool & Supply Co.

Drill, 4 spindle Avey No. 2MT, p.f.  
Drill, 18" Garvin duplex, 2 $\frac{1}{2}$ " cap.  
Grinder, 16" x 36" Norton.  
Grinder, No. 10 B. & S. ext.  
Hobbers, Nos. 3, 12-B & C.

#### Davenport, Iowa

Lathe, No. 9 Le Blond multi-cut.  
Lathe, 18" Libby H. D., turret.  
Millers, Nos. 0-Y & 2 Brown & S.  
Radial drill, 4' American sensitive.  
Turret lathe, Nos. 2 & 6 Warner & S.

### FOR SALE BY

#### Brownell Machinery Co.

Grinder, No. 2 Morse universal.  
Lathes, 12" x 16" Lodge & Shipley, in  
pan, new 1928.  
Lathe, 13" x 48" Pratt & Whitney  
Model "B".  
Miller, No. 4 Cincinnati vert. s. p. d.  
Miller, No. 2-B Brown & S. cone.  
Millers, No. 1 Brown & S. plain.  
Planer, 17" x 17" x 4' Whitcomb.

#### 150 Pine St., Providence, R. I.

Planer, 24" x 24" x 6' Whitcomb.  
Press, No. 4-K Bliss 75-ton embos-  
sing.  
Swaging machine, No. 4 Dayton.  
Screw mch., National Acme "B",  
3-5/16", motor drive.  
Screw machine, No. 6 B. & S., g. f. h.  
Screw mch., No. 4 B. & S. wire feed.  
Turret lathe, No. 2 American.

### FOR SALE BY

#### The O'Brien Machinery Co.

Angle flaring, Thomas, 8" x 8" cap.  
Bending roll, 10" H. & J. 4" cap.  
Boring mill, 72" Bullard vert. 2 hds.  
Boring mill, 3" universal horizontal.  
Column facer, 14" Espen-Lucas.  
Drill, Minister heavy duty 2 $\frac{1}{2}$ " cap.  
Grinder, 10" x 52" Landis, self con-  
tained, plain.  
Hack saw, 6" x 6" Racine & Peerless.  
Hammer, 800 lb. Erie, steam forging.  
Lathe, 27" x 12" L. & S. geared head.  
Lathe, 42" x 28" Fay & Scott b. dr.

#### 113 N. Third St., Philadelphia, Pa.

Lysholm table, 50' x 4' complete.  
Miller, No. 3 Becker universal,  
range 30" x 10" x 18".  
Nipple mchcs. 1 $\frac{1}{2}$ ", 2" & 4" dbl. head.  
Pipe machines, 2, 4, 6, 8 and 12"  
belt and motor drive.  
Punch, beam, type 1G Clev., 24" bms.  
Punch, No. 3 Southwark  $\frac{1}{2}$ " x  $\frac{1}{2}$ ", mtr.  
Shapers, 14, 16, 20 & 24" various makes  
Shear, No. 5 H & J. s. e., 24" blades.  
Slotter, 12" Dill, belt drive, all  
power feeds.

### FOR SALE BY

#### J. L. Lucas & Son, Inc.

Boring mills, 24", 36", 42" Bullard  
New Era, v. t. l.  
Bor. mill, 54"-61" Bullard MaxiMill.  
Boring mill, 72" Colburn.  
Bor. mill, 8" Bull. Multi-automatic, m.d.  
Coilers, No. 1 & 1 $\frac{1}{2}$  Sleeper Hartley.  
Dieing mchcs., H. & W. 25, 75, 150 ton.  
Drills, 3", 5" Morris radial, s. p. d.  
Drill, 4' American tri. purp., s. p. d.  
Drill, 14" Leland-Gifford, p. f., m. d.  
Eyelet machine, No. 156 Waterbury.  
Grinder, 16" Blanchard surf., 25 h.p.  
Grinder, 14" Pratt & Whitney surf.  
Grinders, Nos. 1, 2, 3, 4 B. & S. univ.  
Grinder, 16" x 48" Land, ckshift., late.  
Grinder, 18x55 Norton auto parts.  
Hammers, 100 & 800 lb. Stand. auto.  
Headers, Nos. 0, 1, 2, 4 Man. d.s. s.d.  
Lathes, 14, 16, 18, 20" Amer., g. h. m. d.  
Millers, Nos. 2, 2A, 3A B. & S. univ.  
Miller, No. 2 Cin. univ. vert., m. d.

#### 3 Fox St., Bridgeport, Conn.

Miller, No. 3B K. & T. univ., m. d.  
Miller, No. 2A Becker vertical.  
Miller, No. 4 Cinti. vert. rotary.  
Miller No. 2B K. & T. pl., dbl. arm.  
Millers, Nos. 3 & 4 Cincinnati plain.  
Planer, 36x36x16 D&H o.s., like new.  
Press, No. 660 Toledo 100 ton, k.jt.  
Presses, EG52, EGF53, EG54Ferr, k.jt  
Presses, No. 4 & 5 V. & O. incl.  
Screw mch., No. 00G B & S high sp.  
Screw mch., Nos. 00G, 0G, 2G B&S  
Screw mch., No. 0 B&S high speed.  
Screw mch., No. 6 B & S automatic.  
Screw mch., 14" G Gridley m.d., a.c.  
Shapers, 16" & 24" G. & E. h.d., m.d.  
Slitter, No. 0 Wat.-Far. gang.  
Thread rollers, Nos. 1B, 2B Man. scr  
Tur. lathes, Nos. 1B, 2B Foster univ.  
Tur. lathes, Nos. 4, 2A, 3A W&S univ.  
Wire form., Nos. 0, 1, 3, 3-24 Baird 4 s.  
Wire form., Nos. 3 Nilson; 4 Man. 4 s.

## USED AND REBUILT MACHINERY

### FOR SALE BY

#### McDonald Machinery Co.,

Bolt mch., Landis & Acme 14".  
Boring mill, Lucas No. 21 horizontal.  
Brake, D. & K. 6' 10 ga., pwr. press.  
Brake, Ohl 8' 10 ga. power press.  
Drills, Ciu-Bickford 3" & 3½" radials.  
Drill, Sipp 4-sp., h. s., b. b. pwr. fd.  
Gear hobber, G. & E. 24" & 60".  
Grinders, B. & S. No. 2 surf. & univ.  
Grinder, P. & W. 14" vert. surf.  
Ironworkers, Buffalo No. 0 univ.  
Keyseaters, M. & M. No. 2.  
Lathes, F. & M. 60"x26' bed; LeBlond  
21"x18', q. c. g.; 50 others in stock.  
Milling machines, B. & S. No. 5, vert.  
Milling mches., B. & S. No. 14 Cinc.  
No. 14, Hendey No. 1-B, Kemp.

#### 1535 N. Broadway, St. Louis, Mo.

No. 3; Ohio No. 29; vertical slott.  
attach., all universal; Kemp. No. 1,  
LeBlond No. 3-H; Brown & S.  
No. 3-B, s. p. d., Brown & Sharpe  
No. 3, all plain, Cincinnati 12"  
Mfg.; Ciu. No. 2 a. p. d. hi-duty pl.  
Punch press, d. c. grd. 79" between  
uprights, 5" stroke, wt. 38,000 lbs.  
Screw machines, Foster No. 5, gr. hd.  
Shapers, G. & E., S. & M., Ciu., Ohio,  
American, Steptoe, Queen City,  
12", 16", 18", 20", 24" and 26".  
Square shears, Bertsch 10' 16-ga.  
Turret lathes, W. & S. No. 2A univ.  
Turret lathes, Libby 18" geared  
head universal, Gisholt univ.

### FOR SALE BY

#### Wm. C. Johnson & Sons Machinery Co.,

#### 1211-1223 Hadley Street,

Air compressor, 12"x10' Chgo., belted  
Bar shear, 8"x8".  
Bolt threaders, 1" & 1½" Landis.  
Boring mills, 36", 42", 50" & 72".  
Bulldozers, No. 3 and No. 4.  
Drill, 1-spindle Avey.  
Drill, 6' arm American radial.  
Grinder, 12"x60" Landis universal.  
Grinder, 12"x36" Thompson univ.  
Grinder, 34"x96" Landis cylinder.  
Grinder, No. 60 Head cylinder.  
Hammer, No. 3B Hazel.  
Lathe, 16"x7' P. & W., geared head.  
Lathe, 16"x9' Lehman.  
Lathe, 24"x12' Schumacher & Boye.  
Lathe, 36"x15' American, q. c. g.

#### St. Louis, Mo.

Lathe, 18"x12' South Bend.  
Miller, No. 2 Cincinnati, plain.  
Miller, Ingersoll slab, 27"x23"x14'  
bed, 4 heads, motor drive.  
Pipe machines, 4" and 8".  
Planer, 60"x48"x10' Gray.  
Press, No. 24 Toledo cam drawing.  
Press, No. 59 Niagara grd. tie rod.  
Press, No. 723 Toledo cam drawing.  
Punch, No. 14 W. W., 12" throat.  
Punch, two 20" throats, cap. 1" in 1".  
Sand slinger, Beardsley & Piper.  
Shapers, 16" & 26" Smith & Mills.  
Shear, circle, No. 310 Niagara 48" thr.  
Turret lathe, No. 3A W. & S., 8"  
hole, motor drive.

### FOR SALE BY

#### Brown Machinery Co.,

Brake, 6' 16 ga. Whitney-Jen., new.  
Broach, No. 1 LaPointe, sgl. spdl.  
Drills: 24", 26" and 32"; No. 66-D  
Moline 4-spindle Hole Hog.  
Drill, Allen B., single spindle, m. d.  
Drill, Demco b. b. m. d.  
Grinders: No. 6 Besly dbl. spindle;  
No. 220 Badger auto. disc; 12x30"  
Modern, plain, s. c. c. s.; No. 4  
Cincinnati, 14x72 cylindrical; P. &  
W. 36" vertical surface.  
Groover, power, 6' hoist.  
Lathes, 30" Blaisdell, 28" Harrington  
gap, ext. bed; 26" Putnam, taper  
att., 18" & 16" Lodge & Shipley;  
16" & 14" Monarch; 7"x6" Lo-swing;  
No. 4 Wood Tilted Turret.  
Millers: No. 2 Hendey-Norton, univ.;

#### 2333 N. 9th St., St. Louis, Mo.

No. 3½ FOX; No. 4 Hendey Lincoln;  
American No. 14 plain.  
Planer, 42x42x10 Pond.  
Press, No. 7 Zeh & Hahneman,  
Nos. 1, 3, 4 Loshbough-Jordan.  
Punch, Cleveland C 4 in 1"; Rock  
River Style L 4 in 1".  
Punch & shear, No. 9C Beloit 4 in 1".  
Punch & shear, L & A. 4" cap.  
Riveter, No. 5A High Speed, 1".  
Shaper, 24" Ohio: 20" Queen City.  
Shaper, 20" Columbia; 24" G. & E.  
Shear, 62" underdriven, cap. 10 ga.  
Shear, 4" Lennox bevel.  
Threaders: 4" Geometric; National  
14" double head and single head.  
Upsetter, 3" Ajax, steel bed.  
Welder, 20 k. w. Agnew.

## USED AND REBUILT MACHINERY

### FOR SALE BY

#### Midland Steel & Equipment Co.

Hack saw, 8x8 Racine high speed.  
Lathe, 20"x8" Walcott, q. c. g.  
Miller, No. 4 Becker plain.  
Radial drill, 3' Western.  
Radial drill, 5' Cincinnati-Bick. univ.

#### 400 S. Clinton St., Chicago, Ill.

Shaper, 14" Rockford.  
Shaper, 24" Rockford.  
Sheet leveler, 36" Poole, 16 ga.  
Stromberg Electric Time System,  
with 12-job recording clocks.

### FOR SALE BY

#### H. F. Wolnick Machinery Sales

#### Phone Lawndale 1777

Drills, 1 to 6 spindles.  
Bench lathes and drills.  
Lathes, 12" to 24", various lengths.  
Millers, horizontal and vertical.  
Planers, 24x24 to 60x60x10-12-20".

#### 21st & Marshall Blvd., Chicago

Press, No. 78 Toledo, geared m. d.  
Punch presses, o. b. i. Nos. 1 to 6.  
Screw mach., B & S., Gridley, Acme.  
Shapers, 16", 20", 24".  
Gear hoppers, shapers, generators.

### FOR SALE BY

#### Herben Machinery Equipment Co., 28-30 S. Clinton St., Chicago, Ill.

Brake, 3', 16 ga. D. & K.; 8' 18 ga. \$80.  
Ironworker, No. 10 Pels, 4x4x1" ang.  
Lathes, 20x12 Hendey q. c. g., t. a.,  
20x10 Prentice s.p.d., q. c. g., t. a.  
Millers, No. 1 Kemp. pl.; No. 3 Kemp.  
univ.; No. 3 B. & S. No. 5B. Becker  
Lift, 10' Economy, m. d. 95% new.

Presses, o. b. i., No. 1 Tol.; No. 32 P  
Toledo; Nos. 93 & 94 Bliss.  
Shears, 30, 36, 52, 96" ft.; pwr., all sizes  
Screw mch., auto.; Nos. 52 Acme &  
90 Brown & Sharpe; hand, 1" Mil.,  
Nos. 0 and 2 Foster, 1000 parts  
and collets.

### FOR SALE BY

#### Reliance Machinery Sales Company

#### 1405 Brighton Road, N. S.

Boring mill, 42" King vert. a.c. m.d.  
Bulldozers, Nos. 1, 3, 4, 5, 9 W.-W.  
Drill, 4 spindle No. 4 Colburn.  
Drill, radial, 24' Mueller, s. p. d.  
Lathe, 48"x20' Betts-Bridge., m. d.  
Miller, vert., No. 5-C Becker.  
Presses, Nos. 3 1/2 & 4 Toledo, o. b. i.  
Press, No. 6-B Bliss double crank.  
Press, No. 39 Bliss horn., adj. table.  
Forging hammers, Trimming presses, etc.

#### Pittsburgh, Pa.

Press, trimming, No. 74 1/2 Bliss, flyw.  
Saw, 12"x12" Racine hack.  
Seamer, No. 3 Swaine, double.  
Shapers, 16" to 32", belt and m. d.  
Shear, Marshalltown throatless, 8".  
Shear, 8"x16 ga. Bertsch squaring.  
Shear, 11"x18 ga. Canton squaring.  
Shear, allig., Canton Steel, 4"x4".  
Shear, allig., Canton, 14" sq. m. d.

### FOR SALE BY

#### Geo. M. Bernstein & Co.,

Brake, 6'x12" D. & K power apron.  
Boring mill, 42" Baush vertical.  
Drills, 20" to 42" Barnes, sldg. head,  
b. g., p. f., tapping attachment.  
Grinder, No. 3 W. & M. surf. mag. ck.  
Grinder, No. 13 B. & S. universal.  
Keyseater, No. 2 Davis, 16 cutters.  
Planer, 36"x10' D. & H. open; 3 hd.  
Screw mach., 2 & 4" Clev. auto. "A"  
Shaper, 12" Smith & Mills, crank.  
Shaper, 18" Barker & Chard, crank.

#### 14 S. Clinton St., Chicago, Ill.

Shear, 6"x14 ga. L. & M. power.  
MILLERS:-  
24" Cleveland horizontal bore.  
No. 1 Brown & Sharpe plain.  
No. 1 Kemp. univ.; vert. & div. hds.  
No. 1 Bickford hand, power feed.  
No. 14 Brown & Sharpe plain.  
No. 1A Rockford plain.  
No. 4 Burke hand, power feed.  
4x12" Pratt & Whitney thread.  
No. 5 Ingersoll, vertical & horiz.

## USED AND REBUILT MACHINERY

## FOR SALE BY

William W. Meyer Blower Sales Co.,  
1045 W. Washington Blvd., - - - - - Chicago, Ill.

## BLOWERS AND FANS

Blowers, Connerville—Root positive pressure.

Centrifugal blowers.

Ventilating fans.

Blowers of all descriptions available. What do you need?

## FOR SALE BY

Alex Zeeve, - - - - - 2107 Woolworth Bldg., New York City

Lathe, Niles-Bement-Pond, 28" x 14', heavy duty, q. c. g., taper attachment.

Lathes, Boye & Emmes 27" x 12' heavy duty, quick change gears, (3).

Lathe, Boye & Emmes 24" x 10' heavy duty, quick change gears.

Planer, Whitcomb-Blaisdell 36" x 36" x 16', 2 heads.

Radial drill, Mueller 4' heavy duty, s. p. d. thru gear box.

Shaper, Smith & Mills 28" heavy duty, s. p. d. thru gear box.

Also other desirable tools—write or wire us.

## FOR SALE BY

F. A. Schack, Trustee-In-Bankruptcy

Fort Wayne National Bank, - - - - - Fort Wayne, Ind.

Boring mill, No. 2 Barrett, horizontal, 5" bar.....	\$ 225.
Drill, 6' Baush, radial, arranged for m. d.....	100.
Drill, 42" Baush & Harris, radial, b. d.....	65.
Hammer, 1100 lb. Morgan, single frame, steam or air.....	175.
Planer, 72" x 72" x 24' Niles, 4 heads.....	900.
Planer, 96" x 48" x 13' Pond, 4 heads.....	425.
Pratt & Whitney Plug & Ring Gauges, $\frac{1}{2}$ " to 3" incl.....	55.

## FOR SALE BY

The Elyria Belting & Machinery Co.,

Corner Williams and Buckeye Streets, - - - - - Elyria, Ohio

Blower, Ilg, 4 h. p. motor, like new.

Blower, Roots rotary, pressure.

Boiler, Leffel, 15 lb. pressure.

Bulldozers, Nos. 3 and 5 Williams & White.

Crane, Milwaukee 2 ton, 37', cab-operated.

Drill, American 4' radial, single pulley drive.

Engine, Troy vertical throttling, 36 h. p., 9x9 cylinder.

Hammer, Beaudry Champion, power.

Motor, 100 h. p. synchronous, 50 deg. 80% p. f., 90% new.

Press, No. 55 Toledo, 16" stroke, straight side.

## Wood-Working Machinery

If interested in either new or used wood-working machinery, consult **Wood-Working Machinery**—a monthly publication similar to this, but devoted to the advertising of wood-working and saw-mill machinery and allied equipment.

A copy may be had free of cost on application to the publisher, **Hitchcock Publishing Co., 508 S. Dearborn St., Chicago, Ill.**

# “RE-MANUFACTURED”

## BORING MACHES. (Hor.)

- No. 0 GIDDINGS & L. 3" bar.
- No. 3-A UNIVERSAL, 3" bar.
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- 36", 42" BULLARD "New Era"
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- 10" NILES, belt drive.

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- 14" x 96" NORTON, M. D.
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- 18"-20" x 8" AMERICAN G. H.
- 20"-22" x 8", 12" L. & S. Sel. G. H.
- 24"-27" x 12", 18" L. & S. Sel. G. H.
- 36"-40" x 14", 22" L. & S. Sel. G. H.
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- 66"-x 21", 36" PUTNAM T.G., M. D.

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- No. 2 B MILWAUKEE, S. P. D.
- Nos. 2 & 3 CINN. H. P., S. P. D.
- No. 3-B MILWAUKEE, S. P. D.
- Nos. 4 & 5 CINN. H. P., S. P. D.

## MILLERS (Univ.)

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- No. 4 CINN. H. P., M. D.
- No. 5 BROWN & SHARPE.
- No. 3 CINN. H. P., motor-in-base.
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- 21" x 24" x 12" GRAY.
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- 36" x 36" x 12" D. & H. Open-Side.
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- No. 173-A CONSOLIDATED.
- No. 545-55" HAMILTON.
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- No. 4-L 9<sup>1</sup>/<sub>2</sub>" GISHOLT Turret.

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No. 33 Abrasive Vert. Sur., m. d. in base

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42"x42"x10" G. A. Gray, 1 head.  
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20", 25" Smith & Mills, B. G., cone.

24", 28" Gould & E. B. G., cone.  
24" Potter & Johnson Universal, cone.  
24" Stockbridge B. G., motor drive.  
28" Ohio B. G., cone.  
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## SPECIAL

No. 206B Toledo D. C. Geared, weight 33,400 lbs., 4" stroke  
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14"x6" American Grd. Hd., m. d. taper  
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18"x8" American Geared Head.  
18"x10" Bradford, cone, taper.  
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21"x10" LeBlond, cone, taper.

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## MILLING MACHINES

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No. 3 Kempsmith Universal, cone.  
No. 2A Hendey-Norton Univ., m. d.  
No. 1 Cleveland Universal, s. p. d.  
No. 2½B Milwaukee Vertical, s. p. d.  
No. 3 Cincinnati Vertical, s. p. d.  
No. 6 Becker Vertical, cone.  
No. 13B B. & S. Pl., stand. sp., late.

No. 2, 3, 4, 5 Cincinnati Plain, s. p. d.  
No. 3B, 3B Heavy, 4B Heavy, 5B Heavy Brown & Sharpe Plain, taper  
spindle, motor drive.  
No. 2B, 3B Milwaukee Plain, s. p. d.  
18", 24" Cincinnati Automatic Duplex  
24" Cincinnati Auto. Duplex, m. d.,  
48" Cincinnati Plain Automatic.  
No. 21 Brown & Sharpe Automatic.  
No. 33 Kempsmith Production.

## MISCELLANEOUS

Radial, 5' American Triple Purpose  
Plain, gear box on base.

Radials, 31, 3½, 4', 5', 6' Cincinnati-  
Bickford Plain gear box drive.

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No. 3 Minster, 1½" Stroke, O. B. I.  
No. 3 R. & K., Arch., 3" Stroke,  
No. 18 Bliss, 1½" Stroke, O. B. I.  
No. 3 Moore, 2" Stroke, O. B. I.  
No. 4 Toledo, 1" Stroke, O. B. I.  
No. 4½ Niagara, 2" Stroke, O. B. I.  
No. 5½ I. Cleveland, 3" Str., O. B. I.  
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No. 2½ V. & O., 1" Stroke, O. B. I.  
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**MILLING MACHINES**  
No. 2½ Rockford Pl., C.S.D. 3-Step C.  
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No. 0 Steptoe Hand Mill.  
No. 1 Brown & Sharpe Plain, rack fd.  
No. 1 Bristol Hand Mill.  
No. ½ Van Norman Duplex Plain.  
No. 1 Kempsmith Universal, Vertical  
and Dividing head.  
No. 13-B Brown & S., Lincoln Type.  
No. 0 B. & S., Power Feed.  
No. 6 Cincinnati Plain.  
Becker-B., Lincoln Type, 20x84 Tbl.  
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7x28 Table.

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Wells' 1½" Cap.

## SHAPERS

24" G. & E., 4 Step Cone.  
12" Smith & Mills, O. B., S. C.  
14" Smith & Mills, 4 Step Cone.  
26" Niles Bement & Pond, G. G.

## PLANERS

36 widened x 12, Whitcomb, 2 heads.  
45" x 48" x 15" Am. Tool Wks., 4 hds.

## LATHES

16x8 Rahn, Q.C., 3 St. C., Fric. Hd.  
12x5 Davis Plain, 4 Step Cone.  
14x5 Reed Plain, 4 Step Cone.  
17" LeBlond Heavy Duty, Qk. Ch.,  
Mfg. type, arr. for motor drive.  
24x10 Wicker, Semi-Q. C.

48x18 J. J. McCabe, double spindles,  
faceplate type chuck, tool post.

36" Pond, triple back geared, plain,  
16" bed, 10" centers.

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13x6 Willard Plain.

32x20 New Haven Plain.

## BENCH LATHES

¾" Cap. Elgin Bench Lathe.  
**SCREW MACHINES AND  
TURRET LATHES**  
No. 6 Foster, 3" Cap., 4 Step Cone.  
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Nos. 0 & 00 B. & S. Automatic.  
No. 0 Brown & S., Hand, 3 Step Cone.  
No. 4 Warner & Swasey Plain, B.G.,  
Friction Head, 3 Step Cone.  
Model B Woods Tilted, ¾" Cap. W.  
F., 3 Step Cone.

Model D, Woods Tilted, B. G., Fric-  
tion Head, 3 Step Cone.

No. 0 Foster, W. F., 3 Step Cone.  
No. 3 Warner & S., Flat Turret Lathe.  
No. 515 Acme Auto. Screw McHe.  
24x6½ Gisholt Hex. Turret Lathe.

## DRILLS

4 spindle Allen; 2 spindle Avey.  
24" W. F. & J. Barnes, B. G.  
20" Canedy-Otto, B. G., 4 Step C.  
21" Canedy-Otto.  
Demco High Speed, Ball Bearing.  
20" Rockford, 4 Step Cone.  
No. 3 Henry & Wright.  
Leland-Gifford 2 Spindle, Ball Bear-  
ing, Automatic Feed.

## RADIAL DRILLS

3" American Sens., Arr. for M. D.  
4" American Radial, Arr. for M. D.

## ARBOR PRESSES

No. 0 Canedy-Otto; No. 26 Atlas.  
32" Weaver, High Speed.  
No. 2 Greenend; No. 1 Eames.  
28" Reliance.

## GEAR MACHINERY

No. 8 Lees-Bradner Thread Miller.  
No. 612 Fellows Gear Shaper.  
16" G. & E. Hobbing Machine.  
11" Gleason Bev. Gear Generator.

## MISCELLANEOUS

No. 1 Racine H. & S. Saw, 6x6, Power.  
High Speed Riveting Hammer, M. D.  
22" Square Shear, wired for M. D.  
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42" Power Shear.  
4" Power Brake.  
3-Ton Canton Portable Hoist.  
Polishing Lathe, Ball Bearing.  
Air Compressor.  
Power Hoists.

# GUARANTEED TOOLS

## LATHES

14" x 6' Monarch.  
15" x 8' Sundstrand.  
16" x 8' Cisco, geared head.  
16" x 8' Lodge & Shipley.  
16" x 10' South Bend gap.  
18" x 8' Cisco, geared head.

19" x 10' Sidney.  
20" x 8' American, geared head.  
20" x 12' American, geared head.  
22" x 10' Davis.  
24" x 12' Milwaukee.  
26" x 14' Putnam.

## MILLERS

Nos. 2, 3 & 4 Cincinnati.  
Nos. 1½, 2 & 3 Brown & Sharpe.  
Nos. 1½, 2 & 2½ Rockford.  
Nos. 1½A & 3B Milwaukee.  
No. 2 LeBlond.  
No. 3 Kempsmith.

No. 1 Cleveland universal.  
No. 25 Ohio universal.  
No. 3 Kempsmith universal.  
No. 3 Milwaukee vertical.  
No. 3 Cincinnati vertical.  
Nos. 4B & 6 Becker, vertical.

## PLANERS

20" x 20" x 4' Wheeler.  
22" x 22" x 4' Powell.  
24" x 24" x 6' Woodward & Powell.  
26" Lynd Farquhar openside.  
30" x 30" x 8' Cleveland openside.  
30" x 30" x 12' Cleveland openside.  
32" x 32" x 12' Niles.

36" x 36" x 8' Gray.  
36" x 36" x 10' Cincinnati.  
36" x 36" x 12' Woodward & Powell.  
36" x 36" x 12' Cincinnati, heavy.  
36" x 42" x 12' Cleveland openside.  
42" x 42" x 12' Cleveland openside.  
72" x 60" x 14' Cleveland openside.

## SHAPERS

15" & 24" Potter & Johnston.  
16" Smith & Mills, s. p. d.  
16" Kelly.  
16" & 20" Milwaukee.  
20" Steptoe.  
20" & 24" Gould & Eberhardt.

20" Hendy friction.  
24" American, single pulley drive.  
26" Lynd Farquhar openside.  
28" Columbia.  
32" Walcott.

## PRESSES

Nos. 3 & 5 Toledo, O. B. I.  
No. 3 Moore, O. B. I.  
No. 3 Consolidated, O. B. I.  
No. 4½ Niagara, O. B. I.  
No. 6 Adriance, O. B. I.  
Nos. 75 & 77 Toledo, open back.  
No. 5N American Can, open back.  
No. 73 Consolidated, open back.  
No. P3 Ferracute, punching.  
No. 91 Consolidated, punching.  
82" Ferracute 5154 double crank.  
48" Toledo No. 924C, double crank.  
34" Bliss No. 4, double crank.

31" Bliss Stiles No. 91, dbl. crank.  
150-ton Ferracute EW 52, coining.  
900-ton Bliss 26K, coining.  
No. 266 Consolidated, cam drawing.  
No. DDG 54 Ferracute, cam draw.  
28-ton Henry & Wright dieing.  
No. 41 Toledo geared, horning.  
No. C82 Ferracute, notching.  
No. 2 Standard screw press.  
No. 74½ Bliss straight side.  
Nos. 62, 64, 65 & 67 Consolidated.  
Nos. 56 & 57 Toledo, s. s.  
No. 8-7 Zch & Hahnemann, s. s.

## MISCELLANEOUS

1" Cone automatics.  
9" x 8" Chicago compressor.  
8" x 14 ga. Chicago brake.  
20-ton American hyd. broach.  
21", 24" & 42" Cincinnati drills.  
3" & 6" Cincinnati radials.  
18H & 24H G. & E. hoppers.  
Nos. 1 & 3 B. & S. univ. grinders.  
Nos. 70 & 72 Heald int. grinders.

1", No. 00 Baker keyseater.  
40 & 100 lb. Bradley hammers.  
No. 3A Warner & Swasey.  
52" & 62" King mills.  
8" Osger pipe machine.  
No. 5 Hilles & Jones punch.  
30" Betts slotter, m. d., pr.  
2, 2X & 2BG Garvin tappers.

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**MILES MACHINERY COMPANY**  
Saginaw W. S., Mich.

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28" x 48" Harrington, Sliding Bed.  
32" x 12" B & E. 3 S. C. D., D. B. G.  
20" x 10" American Grd. Hd. S. P. D.  
24" x 22" Bradford, Q. C., 3 S. C. D.  
36" x 16" Lodge & S. Sel. Grd. Hd.  
30" x 10" L. & S. Patent Head.  
30" x 12" L. & S. Sel. Grd. Hd., M.D.  
30" x 14" L. & S., 3 S.C.D., D.B.G.  
24" x 12" L. & S. Patent Grd. H.S.P.D.  
21" x 10" LeBlond, Geared Head.  
20" x 16" American, Geared Head.  
21" x 10" LeBlond Geared Head.  
20" x 8" Am. Grd. Hd., M.D., late t.  
20-30" x 7" Monarch Helical G.H. Gap

## Grinders

16" x 72" Landis Plain, Self Cont.  
16" x 48" Landi. Crankshaft.  
No. 4A Landis Special, Auto. Crank.  
16" x 48" & 72" Landis Crankshaft.  
Type A Production Abrasive Finishing  
Nos. 50, 55, 60, 65 and 70 Heads.  
6" x 18" Landis Plain, Self Contained.  
10" x 52" Landis Plain, Self Con.  
Rivett Internal Grinder.  
No. 2 Brown & Sharpe Surface.  
Nos. 1 1/2 Cincinnati Tool & Cutter.

## Gear Cutters

No. 1 Brown & Sharpe Gear Tester.  
No. 615 Fellows.  
36BM Gould & E. Gear Rougher.  
No. 3, 26" Brown & S. Gear Cutter.  
No. 4, 48" Brown & Sharpe.  
Nos. 1, 2, 4 Adams Farwell Gear Hb.  
18-H Gould & Eberhardt Hobber.  
24H G. & E. Hobber.  
6", 11", 18" Gleason Gear Generators.

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1/2" Landis Double-Spindle.  
1 1/2" Landis Sgl. Sp., Grd. Hd. m. d.  
1" Acme Class "A" Single-Spindle.  
1 1/2" Acme Model A.  
2" Landis Sgl. Sp., lead screw attach.  
2" Landis Double-Spindle.  
18" Landis Pipe Threader.

## Boring Mills

84" Cincinnati Rapid Production.  
24", 36" and 42" Bullard "New Era"  
A. C. motor drive.  
60" Niles Boring Mill, 2 heads.

## Milling Machines

No. 2 Rockford Universal, complete.  
No. 5 Cincinnati High Power, Rectangular Overarm.

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**Cincinnati Machinery & Supply Co., 28 West Second St., CINCINNATI, OHIO**

# Guaranteed Machine Tools

## Bargains with Safety

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14'-20' Niles Vertical, Belt.  
42" Gisholt Vertical, M. D.  
44"-36" Pratt & Whitney, M. D.  
60" Colburn Vertical, M. D.  
Lucas Horizontal, 3" bar.

### Brakes

8" x 10" Gauge Geo. Ohl, Motor Dr.  
10" x 14" ga. Geo. Ohl, (2).  
10" x 8" ga. Ley & Nawrath.  
10" x 1/4" Ley & Nawrath, M. D.  
10" x 5/8" Sonntag, Armor-pl, M.D.

### Drills

4" Niles Universal.  
5" Dreses Radial, Motor Drive.  
5" N. B. P. Radial, Semi-Univ.  
6" American Triple Purpose, (2).  
6" Cincinnati Bickford Radial.  
1 spindle Sipp, High Speed.

### Gear Cutters, Etc.

No. 13 B. & S. Heavy NEW.  
No. 13 B. & S. Light.

### Grinders

No. 3 Abrasive, horiz. spindle.  
No. 2 Diamond, Belt.  
No. 13 B. & S. Univ. & Tool, Belt.  
No. 20 Heald Rot. Surfacer, S. P.  
16" x 48" Landis Crankshaft.  
No. 70 Heald Internal, Belt.  
No. 75 Heald Internal, Belt.

### Lathes

12" x 5' Cleveland, Gd. Hd., (8)  
16" x 6" Lodge & S. Geared Head.  
18" x 10" American, Grd. Hd. (2).  
33" x 12" Lodge & Shipley Cone.  
36" x 22" New Haven, Q. C. G. Hvy.  
46" x 28" Houston S. & G., G.H. (2)  
60" x 50' Pond, Cone.

### Milling Machines

No. 2 B. & S. Vertical.  
No. 3B Milwaukee Univ. S. P.  
No. 3 Cincinnati, Uni. Cone, (2).  
No. 3 Cincinnati, Plain, M. D. (2).  
24" Cincinnati Duplex.  
No. 2 Garvin Duplex.  
No. 2 Knight Vert. Milling & Drill.  
No. 20 Ohio Universal Cone.

### Presses

No. 1 1/2 Bliss Toggle.  
No. 6 Toledo, Flywheel.  
No. 7 Bliss Consolidated.  
No. 8 Perkins Knuckle-Joint Embossing 250 ton capacity, (2).  
No. 5A Toledo, Geared (2).  
No. 5A Toledo, Flywheel M.D. (2).  
No. 6 Toledo Geared (4).  
No. 203-D Toledo, Double Crank.  
No. 5 V. & O.

### Rolls

10" x 1/2" Bertsch.  
48" x 3/8" Niles Straightening.

### Shears

80" x 5" Pels Armor Plate, Gate  
24" throat, M. D., NEW.  
6" x 10" gauge Bertsch, M. D.  
8" x 3/16" Geo. Ohl, M. D.  
10" x 3/16" Geo. Ohl, M. D.  
10" x 1/4" Ley & Nawrath, M. D.  
No. 3A Royersford D. E. Punch &  
Shear, Motor Drive, NEW.  
No. 3 Ryerson Friction Saw, A.C.  
Motor.

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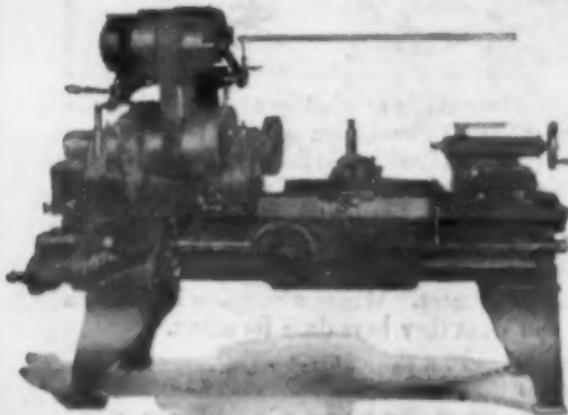
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